

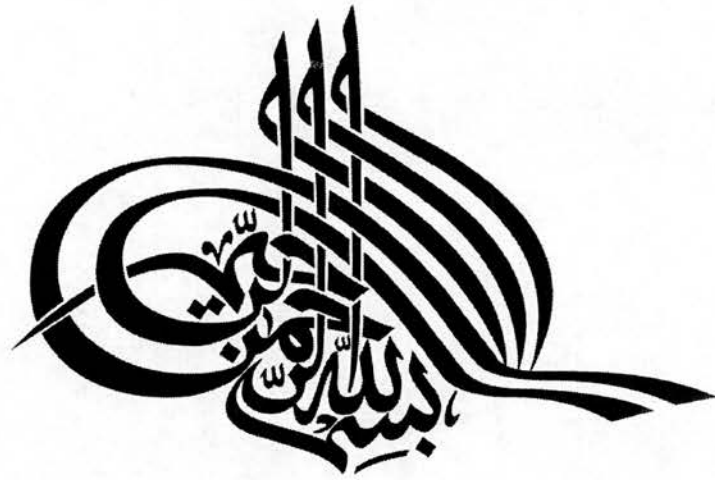
A Strategic Perspective on the Emergence and Evolution of e-Banking in Saudi Arabia

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**Doctor of Philosophy
University of Edinburgh
2007**



I hereby declare that this thesis is my own work. Information taken from other sources and assistance received are duly acknowledged.



To my parents, wife and children

Acknowledgments

I thank and praise Allah for making this work a reality.

I remain deeply indebted to my dear parents, Nasser Al-Jadeed and Norah Al-Hamidi, for having had habits of order and regularity instilled into me at a very early age as well as for their continued encouragement and support until today.

I also remain deeply indebted to my lovely wife, Hind Al-Moziel, for sharing every moment of the graduate life with me. Without her love, patience, encouragement, and support, it is impossible for me to complete this long journey.

My love and thanks to my lovely children, Norah, Nasser, Najd, Osama and Saleh, for their never-ending love, support, and most of all, patient.

I also remain indebted to my brothers and sisters, Ibraheem, Dr. Mansour, Wasmiyah, Nawal, Fahad, Ahmed, Monerah, Yousef and Wafa for their encouragement and good wishes.

Training is very costly. However, there is no alternative to it if nations wish to progress. I would like to express my thankfulness to the Government of the Custodian of the Two Holy Mosques King Abdullah bin Abdulaziz for the ambitious training strategy that it is following and the support that expatriate Saudi Arabian students are receiving.

I wish to express my sincere thanks to my employer, the Saudi Arabian Monetary Agency (SAMA), for sponsoring me. I also wish to express my sincere thanks to His Excellency Mr. Hamad Al-Sayari, the Governor of SAMA, for his encouragement to conduct this work, to His Excellency Dr. Mohammed Al-Jasser, the Vice Governor of SAMA, for his generously offered the support and encouragement necessary to make this work a reality, to His Excellency Mr. Jamaz Al-Suhaimi, the former Chairman of the Capital Market Authority (CMA), for his invaluable help and support during the filed work, and to the Saudi Arabian Cultural Bureau in UK and Ireland for the guidance and supervision throughout the program.

This work would not have been possible without the superb guidance and generous support of my supervisor, Professor Alfonso Molina, Professor of Technology Strategy at the Management School and Economics, University of Edinburgh. His intellectual guidance, supervision, comments, criticism, encouragement, and friendship throughout the thesis have been invaluable.

I also extend my thanks to the staff and fellow research students at the Management School and Economics, University of Edinburgh, and all my friends for their good wishes.

This work could not also have been done without the participation of interviewees from the Saudi banks and other organisations. I would like to thank them all for their positive and open attitude to the research questions.

Finally, I thank and praise Allah again and again for making this work a reality.

Abstract

The aim of the thesis is to look at the emergence and evolution of e-banking in Saudi Arabia, with particular emphasis on the processes of how banks implement e-banking to build their capabilities and create new value strategies. The research process focuses on understanding (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks. This requires understanding of a variety of aspects (i) the value created by e-banking products and services within different banks, (ii) the process of e-banking development within the different banks, (iii) how banks approach e-banking products and services, and (iv) how the banks align the demand and supply factors surrounding e-banking products and services.

The theoretical approach blends inputs from different disciplines relevant to understand and deal with the subject matter of this thesis, including value creation and capability-building literature, technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses, as well as literature on process approaches. The methodological approach makes use of the case study strategy (Yin 2003) as research strategy, a multiple-case embedded design, as research design strategy, and three sources of evidence: (1) a survey distributed to all Saudi Arabian banks, (2) semi-structured interviews, and (3) archival records of e-banking transactions. The main fieldwork is longitudinal and takes place during three rounds: September-October 2003, December 2003-March 2004, and December 2005-January 2006.

The thesis investigates the emergence and evolution of e-banking at six Saudi Arabian banks: Samba Financial Group (Samba), AlRajhi Bank (AlRajhi), Saudi Investment Bank (Saib), Saudi Hollandi Bank (Hollandi), National Commercial Bank (AlAhli), and Riyadh Bank (Riyad). This is followed by an investigation of the emergence and evolution of electronic securities trading systems at the Saudi Capital Market (i. e., Tadawul), providing an external view of the emergence and evolution of e-banking in Saudi Arabia.

The analysis of the empirical material implements the theoretical propositions strategy via utilisation of the "sociotechnical constituencies" approach (Molina 1990; 1993) and its associated analytical tools of the "diamond of alignment" (Molina 1995), "alignment web" (Molina 2003) and "dynamic strategy mapping" (DSM) (Molina 2005). The aim is not only to use the approach to reveal how banks build their e-banking capabilities and create new value strategies, but also to test critically the applicability of the "sociotechnical constituencies" approach and its associated analytical tools for understanding e-banking value creation and capability-building strategies.

The overall result of the investigation conducted by this thesis suggests that the Saudi Arabian e-banking' constituency-building process shows distinctive processes of sociotechnical alignment by each one of the specific Saudi banks' e-banking constituencies in the study. In addition, the use of Molina's "alignment web" to assess the state of each of the specific e-banking constituency-building processes helps identify the areas of strengths and weaknesses in these processes of sociotechnical alignment. The distinctiveness of development by each sociotechnical constituency is also highlighted by the application of the Molina's "dynamic strategy mapping" (DSM), showing that each constituency has its own combination of strategic ingredients.

Although this thesis demonstrates strengths in the areas of logic replication, narrative writing, and validating procedure, in future studies it would be interesting to enhance its theoretical background, chronological structure, and quantitative assessment. This thesis contributes to providing a rich insight into the emergence and evolution of e-banking in Saudi Arabia, particularly at six of eleven Saudi banks as well as the technological systems of the Saudi Capital Market. Such contribution may be used to inform the future alignment strategy pursued by each the Saudi Arabian e-banking constituencies.

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List of Abbreviations

ACCs	European Candidate Countries
ACH	Automated clearance house
AlAhli	National Commercial Bank
AlArabi	Arab National Bank
AlBilad	AlBilad Bank
AlFransi	Banque Saudi Fransi
AlJazira	AlJazira Bank
AlRajhi	AlRajhi Bank
AML	Anti-money laundry
ANT	Actor network theory
ARCCEC	AlRajhi Company for Currency Exchange & Commerce
Asal	Amex Saudi Arabia Ltd.
ATM	Automatic teller machine
B2B	Business-to-business
BIS	Bank of International Settlements
BIT	Business and IT strategy
BMA	Bahrain Monetary Agency
BNM	Bank Negara Malaysia
BODs	Board of Directors
BSC	Bank Steering Committee
BTC	Banking technology Centre
BVL	Business value linkage
CAQDAS	Computer assisted qualitative data analysis software
CBA	Cost benefit analysis
CBT	Audio and video training methods
CD	Cash dispenser
CEO	Chief executive officer
CIO	Chief Information Officer
CMA	Capital Market Authority
CML	Capital Market Law
CRLC	Customer resource life cycle
CRMS	Credit risk management system
CSDR	Clearing, settlement, depository and registration
CSF	Critical success factor
CTG	Citigroup Technology Group
CTU	Centralised trading unit
DEFINE	The former core banking system of Citibank
DFM	Dubai Financial Market
DSM	Dynamic strategy mapping
DVP	Real delivery verse payment feature
E-banking	Electronic banking
EMDB	Emerging Markets Data Base
EMEA	Europe, Middle East and Africa
ERP	Enterprise Resource Planning
ESIS	Electronic Shares Information System
EU15	European Union countries
FDIC	Federal Deposit Insurance Corporation
GOSI	General Organisation for Social Insurance
HB	Home banking
Hollandi	Saudi Hollandi Bank
IADIS	International Association for Development of Information Society
IBIMA	International Business Information Management Association
ICT	Information and communication technology
IFC	International Finance Corporation

IFCG	International Finance Corporation Global
IPM	Internet portfolio map
IPOs	Initial public offerings
IS	Information system
ISS	Internet Security Systems
IST	Information systems technology
IT	Information technology
JPMorgan	J. P. Morgan International Finance Limited
KSE	Kuwait Stock Exchange
LAN	Local area network
MIT	Massachusetts Institute of Technology
Mizuho	Mizuho Corporate Bank Limited
MkIS	Marketing information system
MOF	Ministry of Finance
MSE	Moscow Stock Exchange
MTI	Model of Technology Infusion
NBS	National Bank of Spain
NIC	National Information Centre
ORP	Operations re-engineering project
OSA	Opening a student account
OTA	Office of Technology Assessment
PDA	Personal digital assistance
PIE	Public Investment Fund
POS	Point-of-sale
QMS	Query Management System
RB	Remote banking
PF	Pension Fund
REDF	Real Estate Development Fund
Riyad	Riyad Bank
SAB	Saudi Arabian Agricultural Bank
Sabb	Sabb Bank
SADAD	The Saudi inter-bank checks payment and presentment system
SAGIA	General Investment Authority
Saib	Saudi Investment Bank
SAMA	Saudi Arabian Monetary Agency
Samba	Samba Financial Group
SAR	Saudi Arabian Riyal
SARIE	Saudi Arabian Riyal Inter-bank Express
SBM	Saudi Business Machines
SCB	Saudi Cairo Bank
SCB	Saudi Credit Bank
SCOT	Social construction of technology
SCSB	Saudi Credit & Saving Bank
SIDF	Saudi Industrial Development Fund
SMS	Short message service
SMSs	Small to medium size enterprises
Solc	Saudi Orix Leasing Company
SPA	Saudi Press Agency
SPAN	Saudi Payments Network
SPAN-2	Saudi Payments Network Two
SSE	Shanghai Stock Exchange
SSK	Sociology of scientific knowledge
SSRC	Saudi Share Registration Company
SSRC-IT	Saudi Share Registration Company's information system
STC	Saudi Telecom Company
STP	Straight-through processing
T&O	Technology & Operations Group
Tadawul	Electronic securities trading system at the Saudi Capital Market

TAM	Technology acceptance model
TASI	Tadawul All-Share Index
TCS	Tata Consultancy Services Limited
TPB	Theory of planned behaviour
TRA	Theory of reasoned action
TSC	Technology Steering Committee
TSD	Technology Services Division
UAE	United Arab Emirates
USB	United Saudi Bank
USCB	United Saudi Commercial Bank
VCRs	Videocassette recorder
WAN	Wide-area network
WAP	Wireless Application Protocol
WFE	World Federation of Exchanges
WTO	World trade organisation
WWW	World Wide Web

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Chapter 1: Introduction

1.1 Introduction

The aim of the thesis is to look at the emergence and evolution of e-banking in Saudi Arabia, with particular emphasis on the processes of how banks implement e-banking to build their capabilities and create new value strategies. Questions have been raised about the banks' efficiency in utilising the unique features of e-banking for improving their competitive positions and images. There is a growing concern that e-banking is not yielding the anticipated results (Frei & Harker 1999; Amit & Zott 2001; Simpson 2002). This has thrown a spotlight onto the problem of change from one particular delivery channel to another. In practice, an appropriate mix of delivery channels will be determined by a number of factors on the supply and demand sides of the market (Daniel 1999; Lang & Colgate 2003; Bughin 2004). This process is the concern of the thesis.

1.2 Questions of the thesis

The research starts with a broad area of inquiry related to understanding and providing an account of the emergence and evolution of e-banking in Saudi Arabia. The inquiry, next, is inductive and aims to explore and describe the actions of those banks based on what they are doing rather than verifying any hypotheses. The research starts the inquiry with an open mind rather than a closed one. The literature that it reviews before the fieldwork helps to view the empirical world more effectively.

The research process focuses on understanding (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks. This requires understanding of a variety of aspects (i) the value created by e-banking products and services within different banks, (ii) the process of e-banking development within the different banks, (iii) how banks approach e-banking products and services, and (iv) how the banks align the demand and supply factors surrounding e-banking products and services.

1.3 Structure of the thesis

The aim of this section is to briefly explain the way the thesis is structured to respond to its questions. The thesis is organised into twelve chapters, with Chapter 1 dedicated to introducing the thesis. Chapter 2 looks at literature relevant to understanding and dealing with the matter of this thesis, that is the emergence and evolution of e-banking with particular emphasis on (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking

capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks.

The literature review covers a wide range of material on the subject and is believed to be comprehensive and up-to-date. It defines the term “e-banking” and looks briefly at the emergence, evolution, nature, products, and services of e-banking. The review then explores the focus of e-banking research through distinguishing among factors influencing the adaptation of e-banking into supply and demand side factors. The demand side factors of e-banking research includes marketing, acceptance, usage, quality, and trust while that of supply side includes competition, resources, implementation, efficiency, and productivity.

This is followed by a discussion on the theoretical foundations of value creation and capabilities building in e-banking. It briefly discusses some views on value creation and capabilities building according to Schumpeter’s conventional theory of creative destruction (Schumpeter 1942), resource-based view of the firm (Penrose 1959), transaction costs economics (Williamson 1975), value-chain analysis (Porter 1985), dynamic capabilities approach (Teece et al. 1997), strategic network theory (e.g., Dyer & Singh 1998), and accelerating capability building (Hagel & Brown 2005). This is followed by a discussion on a group of emerging theoretical value creation frameworks in e-business (e.g., Willcocks & Plant 2001; Amit & Zott 2001). The section concludes the discussion by looking at the applicability of these theories in the context of e-banking (e.g., Colgate 1998; Mole 1999; Hensmans et al. 2001), which will enable us to provide answers to the key questions raised by this thesis regarding how banks create e-banking value.

The discussion, next, looks in details to the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. It discusses the term “implementation” and looks briefly at the relation between implementation, innovation and diffusion, the dynamics of the implementation process, and its different stages/phases. It also looks at the implementation challenges, success and failure, implementers’ responsibilities and broad implementation approaches, before ending with a brief review of empirical studies related to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s.

The findings of the implementation literature provide the background for the identification of structured process approaches useful to analyse in detail and comparatively the emergence and evolution of concrete e-banking experiences in Saudi Arabia. Consequently, Chapter 2 continues with a discussion on the sociotechnical approach with particular focus on the “sociotechnical constituencies” approach (Molina 1990; 1993) that seems to offer a more structured framework to organise the comparative study of concrete e-banking experiences, particularly through its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005).

The aim is not only to use the approach to reveal how banks build their e-banking capabilities and create new value strategies, but also to test critically the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding e-banking value creation and capability-building. Accordingly, Chapter 2 provides a brief positioning of the “sociotechnical constituencies” approach (Molina 1990; 1993) in social theory and a review of early “social theory” approaches stressing the interaction between social and technical factors during the development of technology. This is followed by (a) comparing the “sociotechnical constituencies” approach (Molina 1990; 1993) with such theoretical approaches and (b) introducing a group of studies that have attempted to use the “sociotechnical constituencies” approach (Molina 1990; 1993). A justification to the potential applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) to analysing the emergence and evolution of e-banking in Saudi Arabia concludes the critical analysis, before proceeding to the introduction of the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005), the recent give the most recent conceptual instruments of the “sociotechnical constituency” approach (Molina 1990; 1993).

Chapter 3 discusses the research methodology and the path the research process will follow in conducting the empirical work and analysis. The discussion highlights the research strategy, which is the case study strategy (Yin 2003), together with the reasons for choosing such a strategy among other research strategies (e.g., experiment). Such reasons are (1) the questions posed by the thesis are “how” and “why” types of questions, (2) the research process would not be able to control behaviour, and (3) the thesis needs to focus on a contemporary event.

Chapter 3 also discusses the research design to develop the logic that linked the data to be collected to the questions posed by the thesis. The thesis questions lead to favouring the e-banking sociotechnical constituency-building process (a case) as the primary unit of analysis, and the bank as the secondary unit of analysis. The research design also uses a multiple-case embedded design as a case-study design. Looking at several units of analysis would help not only in understanding the dynamics in operation (Hammady 1999), but also in enhancing insights to the single case (Yin 2003). The data analysis strategy concludes Chapter 3. In Yin’s (2003: 33) words:

“The use of theory, in doing case studies, is not only an immense aid in defining the appropriate research design and data collection, but also becomes the main vehicle for generalising the results of the case study.”

The data analysis strategy of this thesis implements the theoretical propositions strategy via the utilisation of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005). The data analysis strategy also utilises a group of methodological strategies and techniques, including pattern-matching, explanation building, logic

models, coding, pattern coding, cross-case synthesis, and stacking comparable cases. Such methodological combinations will help to draw sound findings.

To provide insights about the possible approaches to the thesis, the research process conducts two pilot studies during August 2003 in Saudi Arabia with AlRajhi Bank (AlRajhi) and Riyadh Bank (Riyad). These pilot studies are initial and of an exploratory role. The findings of the pilot studies are critically important in formatting the data collection process, in particular, and the entire research, in general. The findings lead to the use of three sources of evidence: (1) a survey to be distributed to all Saudi banks, (2) semi-structured interviews, and (3) archival records of e-banking transactions provided by the Saudi Arabian Monetary Agency (SAMA). The main fieldwork takes place during three rounds: September-October 2003, December 2003-March 2004, and December 2005-January 2006.

The structure of the thesis then moves to investigating the emergence and evolution of e-banking at six Saudi banks as well as an inter-bank technological system at the Saudi Capital Market, providing an external view of the emergence and evolution of e-banking in Saudi Arabia. This makes up a total of seven case studies, with each case study making up a single chapter (i.e. Chapter 4, 5, 6, 7, 8, 9, and 10) and following a largely common structure.

Such common structure starts with a brief overview of the organisation (e.g., the bank) and some of the key events shaping the organisation's developments since inception. It then looks at the particular development of e-banking at the organisation through the conceptual lens of the "diamond of alignment" (Molina 1995). The diamond selected for the analysis is a two-layered intra- and inter-organisational diamond, given that important features of the organisation's e-banking constituency-building process are the result of inter-organisational interactions between the organisation and other organisations. A section with policy implication concludes each of the seven chapters.

Following such systematic structure, Chapter 4 investigates the emergence and evolution of e-banking at Samba Financial Group (Samba). The discussion distinguishes two distinctive periods in the evolution of the Samba e-banking constituency. The first period goes from the beginnings of Samba to the late 1990s when the merger with the United Saudi Bank (USB) occurred. This is followed by the second period that extends until today and in which the Internet plays a major role. To highlight the differences between the two periods, the "diamond of alignment" (Molina 1995) is applied separately to each of the two periods.

Chapter 5 investigates the emergence and evolution of e-banking at AlRajhi. The discussion distinguishes three phases in the evolution of AlRajhi e-banking constituency: origins (1987-1995), development (1996-2000), and present state (2001-2006). To highlight the differences between the three phases, the "diamond of alignment" (Molina 1995), is applied separately to each phase. Chapter 6 investigates the emergence and evolution of e-banking at the Saudi Investment Bank (Saib). The

discussion briefly assesses the state of Saib's e-banking constituency prior to the implementation of Saib's business and IT strategy (BIT). It then focuses on the implications of the implementation of BIT, which goes from the late 1990s to today.

Chapter 7 investigates the emergence and evolution of e-banking at the Saudi Hollandi Bank (Hollandi). The discussion focuses on the evolution of the Hollandi e-banking constituency as well as its implications for Hollandi today. Chapter 8 investigates the emergence and evolution of e-banking at the National Commercial Bank (AlAhli). The discussion focuses on the evolution of the AlAhli e-banking constituency as well as its implications for AlAhli today. Chapter 9 investigates the emergence and evolution of e-banking at Riyadh. The discussion focuses on the evolution of the Riyadh e-banking constituency as well as its implications for Riyadh today.

Expanding the discussion toward an inter-bank technological system and the implications it has on the sociotechnical constituency-building process in Saudi banks provides an external view of the emergence and evolution of e-banking at Saudi Arabia. Accordingly, Chapter 10 investigates the emergence and evolution of the trading, clearing and settlements system of securities in the Saudi Capital Market (i.e. Tadawul). This case provides more insights as the Tadawul constituency involves important constituents spread across all Saudi banks.

The emergence of the Tadawul constituency finds its historical origins in the Electronic Shares Information System (ESIS) constituency that developed during the 1990s. Therefore, it is necessary to assess the build-up of the ESIS constituency before looking at the particular development of the Tadawul constituency, which goes from the late 1990s until today, through the conceptual lens of the "diamond of alignment" (Molina 1995). Again, the diamond selected for the analysis is a two-layered intra- and inter-organisational diamond, given that important features of the Tadawul's constituency-building process are the result of intra- and inter-organisational interactions between Tadawul and other organisations.

Following the investigation of the emergence and evolution of e-banking at each of the six Saudi banks as well as at the Saudi Capital Market, the thesis next looks at, in Chapter 11, an integrative picture of Saudi e-banking. The discussion compares and contrasts the emergence and evolution of e-banking among the seven case studies. The discussion makes use of conceptual tools associated with the "sociotechnical constituencies" approach (Molina 1990; 1993), namely, the "alignment web" (Molina 2003) and "dynamic strategy mapping" (DSM) (Molina 2005) of e-banking constituency-building processes. The discussion also takes a comparative perspective, highlighting differences and similarities among the seven case studies.

It starts with the application of the "alignment web" (Molina 2003) to analyse quantitatively the current state of the process of sociotechnical alignment for each of the Saudi e-banking constituencies. This assessment is related to the more qualitative assessment conducted in the previous chapters with

the case studies. It is indeed complementary since the content of the “diamond of alignment” table (Molina 1995) is developed by the author as a summary interpretation of the constituency-building story, while the markings of the “alignment web” (Molina 2003) are given by key players in each of the e-banking constituency-building processes.

This is then supplemented by the application of the “dynamic strategy mapping” (DSM) (Molina 2005) in the case studies of three e-banking constituencies (i.e. AlAhli, Riyad, and Tadawul). The “dynamic strategy mapping” (DSM) (Molina 2005) is however applied only to the current phase of development of the e-banking constituencies of the three e-banking constituencies. The combined use of the tools produces a detailed assessment of the current state of the process of sociotechnical alignment for each of the e-banking constituencies.

Chapter 12 concludes the thesis by highlighting its empirical contribution, strategy-policy recommendations, and assessment of the thesis. In addition, Chapter 12 provides the results of testing the applicability of the “sociotechnical constituencies” approach and its associated analytical tools for understanding e-banking value creation and capability-building, as well as suggestions for further research.

Chapter 2: Literature review

2.1 Introduction

The aim of this chapter is to look at literature relevant to understanding and dealing with the matter of this thesis, that is the emergence and evolution of e-banking with particular emphasis on (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks.

The literature review covers a wide range of material on the subject and is believed to be comprehensive and up-to-date. Respectively, sections 2.2 and 2.3 defines the term “e-banking” and looks briefly at the emergence, evolution, nature, products, and services of e-banking. Section 2.4 explores the focus of e-banking research. It distinguishes between factors influencing the adaptation of e-banking into supply and demand side factors. The demand side factors of e-banking research include marketing, acceptance, usage, quality, and trust while that of the supply side include competition, resources, implementation, efficiency, and productivity.

Section 2.5 aims to look at the theoretical foundations of value creation and capabilities building in e-banking. It briefly discusses some views on value creation and capabilities building according to Schumpeter’s conventional theory of creative destruction (Schumpeter 1942), resource-based view of the firm (Penrose 1959), transaction costs economics (Williamson 1975), value-chain analysis (Porter 1985), dynamic capabilities approach (Teece et al. 1997), strategic network theory (e.g., Dyer & Singh 1998), and accelerating capability building (Hagel & Brown 2005). This is followed by a discussion on a group of emerging theoretical value creation frameworks in e-business (e.g., Willcocks & Plant 2001; Amit & Zott 2001). The section concludes the discussion by looking at the applicability of these theories in the context of e-banking (e.g., Colgate 1998; Mole 1999; Hensmans et al. 2001), which will enable us to provide answers to the key questions raised by this thesis regarding how banks create e-banking value.

Section 2.6 looks in details to the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. Such literature would help providing intellectual background for the discussion on the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993), discussed in details in Section 2.7, for understanding the potentials of e-banking value creation and capabilities-building.

The section starts with clarifying the term “implementation” and looks briefly at implementation from the lens of innovation and diffusion. Then, the section discusses the nature of the implementation process, as well as its different stages/phases. Next, the section flows the discussion toward implementation challenges, strategies to achieve success and avoid failure, implementers’ responsibilities and different implementation approaches. The section concludes the discussion by introducing a group of empirical work related to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s.

The thesis utilises the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005). The aim from conducting such large deployment from a single theoretical field is not only to reveal how banks build their e-banking capabilities as well as create new value strategies, but also to test the applicability of the “sociotechnical constituencies” approach and its associated analytical tools for understanding the potentials of e-banking value creation and capabilities-building.

Accordingly, Section 2.7 continues the review of literature by discussing the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tool of the “diamond of alignment” (Molina 1995). It also critically assesses the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) for understanding the potentials of e-banking value creation and capabilities-building. This thesis makes use of instruments associated to the “sociotechnical constituencies” approach (Molina 1990; 1993) namely, the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005) of e-banking constituency-building processes. The “alignment web” (Molina 2003) is based on the “diamond of alignment” (Molina 1995) while the “dynamic strategy mapping” (DSM) (Molina 2005) is based on mapping and supporting strategies of processes of innovation or development of products and services. The tool is associated with the “sociotechnical constituencies” approach (Molina 1990; 1993) insofar as processes of product or service innovation are understood as the evolutionary building-up of “sociotechnical constituencies” (Molina 1990; 1993). The last parts of Section 2.7 introduce the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005).

2.2 Definition of e-Banking

The term “e-banking” has been used in the literature in many different ways. While some literature restricted the use of the term to information provision, as Daniel (1999: 72), for instance, “the provision of information about the bank and its products via a page on the World Wide Web (WWW)”, others limited the term “e-banking” to retail banking, as Aladwani (2001: 214), for instance, “several types of services through which bank customers can request information and carry

out most retail banking services, such as balance reporting, inter-account transfers, bill-payment, etc., via a telecommunication network without leaving their homes or organisations”.

The Basel Committee Report on Banking Supervision (1998: 3) defined “e-banking” as, “the provision of retail and small value banking products and services through electronic channels. Such products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services, such as electronic money”.

Simpson (2002: 316) included corporate banking in addition to retail banking, “e-banking is a new electronic way for customers of banks and financial institutions to access their accounts, pay their bills, manage their money, and use various other services.” Liao et al. (1999: 36) focussed on the process of providing e-banking, “the provision of banking services through electronic media, such as ATM, telephone, personal computers and/or Internet”.

Buzzacchi et al. (1995: 157) provided details about e-banking components, e-banking refers to “a cluster of product innovations ... [that] include: the [cash dispenser] (CD), which allows the user to withdraw cash from his (her) accounts in different banks thanks to the connection to the inter-bank network; the ATM, which provides the user with a broader range of teller services;... the point of sale (POS), an automatic device located in retail outlets for debiting purchases; and remote banking (RB) services, functioning via a network from the user's place of residence and divided, according to the type of user, into two categories, home banking (HB) and corporate banking (CB)”.

Not only has each definition been stated from a different angle, but it has also been fabricated to furnish specific needs. For example, the Basel Committee for Banking Supervision limited e-banking to retail banking when it produced its report on retail banking supervision. Accordingly, based on such different definitions of e-banking as well as for the purpose of this thesis, the term e-banking refers to the provision of banking products, services, and platforms through electronic channels (e-channels) to furnish all customers’ segments (e.g., retail, corporate, governmental agencies).

Next I look at a brief overview of e-banking products and services.

2.3 A brief overview of e-Banking

No doubt if one seeks to understand e-banking, then one needs to take into account the full spectrum of issues related to its growth (Centeno 2004). This section not only looks briefly at the emergence and evolution of e-banking, as Centeno suggested, but also highlights different taxonomies of e-banking products and services. The emergence and evolution of e-banking can be traced back to the 1950s. According to Smith (1985), the first computers were brought into banks during the mid-1950s. Computers started with accounting functions, performing calculation tasks. Then, their roles were developed to be used for voucher sorting. The development story has continued until today with the

involvement of computers in all of the new forms of self-service banking, such as automatic teller machines (ATMs), point-of-sale (POS) terminals and Internet. Table 2.3.I provides the major milestones in the advance of e-banking.

System	Installation date of early system
Accounting	1958-1965
Voucher sorting for clearings	1963-1968
Branch online data collection	1965-1975
Cash dispensing machine	1966-1971
Electronic fund transfer (EFT)	1968-1973
Counter terminal systems for transaction processing	1971-1976
Automated telling machine (ATM) systems for cash dispensing and self service banking	1972-1976
Terminal systems for non-cash self-service banking	1977-1980
Electronic fund transfer at the point of sale (EFTPOS)'s systems for transactions	1980-
Home banking systems for self-service banking	1980-
Branch information systems	1982-

Table 2.3.I Banking systems based on electronic technology (Smith 1985: 37)

Buzzacchi et al. (1995) distinguished banking technology into “mass automation” and “smart automation” regimes. The “mass automation” regime focused mainly on the mechanisation of back-office procedures in the 1960s and 1970s. The “smart automation” regime, however, originated from the introduction of distributed data processing and network technologies, and centred on the supply of e-banking. One important implication of the change in technological regime is that discontinuation largely cancelled out the cumulative effects associated with the path previously followed by technology.

The evolutionary path of e-banking has been influenced by the nature of e-banking itself. BIS (1998) suggested two fundamental aspects of e-banking. The first is the nature of the delivery channels through which activities are pursued. This aspect is the means for customers to gain access to those channels. Rayport and Sviokla (1995) highlighted three differences between the virtual market space and the physical marketplace. The first is that pricing at the virtual market space should be based on value rather than cost as most services have little marginal cost. The second is that customers are unlikely to return to the marketplace after experiencing the benefits of the market space. The third is that suppliers can easily offer additional products and services to customers in the market space.

Mols (2001) pointed out that e-banking is interesting for many reasons. The first is that the new e-channels can offer customers better service output in the form of a broader and deeper assortment, less waiting time, and a higher market decentralisation. The second is that e-channels are more cost-effective than other conventional channels (e.g., branch), resulting in lower prices for the customers. The third is that e-channels may change the way in which banks interact with their customers and may facilitate direct marketing, relationship marketing, and mass customisation and thus increase customer

loyalty. The fourth is that the number of customers demanding e-channels is likely to increase in the future.

In addition to the nature of e-banking itself, its development process usually approaches many stages. Conger and Mason (1998) suggested that the process of developing e-banking products or services proceeds through three generic stages: pre-development, development, and post-development. The pre-development stage refers to the period before producing an e-banking product or service. At this stage, the idea of adopting e-banking emerges, and the benefits of initiating e-banking become discernible for the bank. The development stage refers to the actual development or implementation of e-banking. The development process of an e-banking product or service involves several managerial and technical issues that need to be addressed adequately. The post-development refers to the period after terminating the actual production process of e-banking. At this stage, the bank needs to understand transfer and maintenance issues to ensure the future success of the project.

Parsons et al. (1996) suggested another classification for the development process. Organisations go through four main stages in adopting the Internet. The first stage involves the initiative to launch a basic on-line presence mainly to present information to the customers. The second stage sets a small full-time technical group of staff to establish and maintain the Internet site. The third stage develops the structure of such group though separating marketing from technical. The fourth stage features the core business re-definition and transformation.

The emergence and evolution of e-banking have brought many types of e-banking products and services. Based on the supply side of e-banking, BIS (1998) distinguished e-banking products and services according to its technical platform into "closed" and "open" e-banking. While the "closed" restricts access to participants bound by agreements on the terms of membership, the "open" has no such membership requirements. Swierczek and Shrestha (2003), however, based their taxonomy on the demand side of e-banking rather than the supply side. They divided e-banking based on the users' segment rather than the technical platform into two categories: "retail" and "corporate" e-banking products and services. Daniel (1999) classified e-banking products and services, according to its technology, into PC banking, Internet banking, managed network banking, and TV-based banking. The quality and variety of services offered via each product or service are different from one to another.

Next I look at the focus of e-banking research.

2.4 Focus of e-banking research

2.4.1 Introduction

The discussion on the emergence and evolution of e-banking as well as the different taxonomies of e-banking products and services shows that offering e-banking products and services is a demanding

task. Devlin (1995: 19) distinguished among factors influencing the adoption of e-banking into supply and demand side factors:

“The appropriate mix of delivery systems for financial services institutions is determined by a number of factors on both the supply and demand sides of the market. On the supply side, factors, such as regulation, technology and the resultant changes in market structure, will influence the chosen methods of delivery for financial services firms, while on the demand side consumer preferences and expectations are obviously of prime importance.”

The aim of this section is to explore e-banking research from Devlin (1995)’s lens on e-banking adoption factors. Some of the articles investigated more than one topic. A few even studied as many as four different aspects. The review of e-banking literature categorises demand side factors of e-banking research into five factors: marketing, acceptance, usage, quality, and trust. Supply side factors are also categorised into five factors: competition, resources, implementation, efficiency, and productivity.

2.4.2 Demand-side focus

The review of e-banking literature categorises the demand side factors of e-banking research into five factors: marketing, acceptance, usage, quality, and trust.

2.4.2.1 Marketing and diffusion

A group of literatures has investigated the role of marketing e-banking products and services. The general aim of such literature is to look at possible tactical approaches that can be used by banks or financial institutions to ensure successful diffusion of e-banking products and services among target customers. Morgan and Hunt (1994) suggested that relational marketing-establishing, that is developing and maintaining successful relational exchanges, constitutes a major shift in marketing theory and practice. After conceptualising relationship marketing and discussing its forms, Morgan and Hunt theorised that successful relationship marketing requires relationship commitment and trust. They also model relationship commitment and trust as key mediating variables, test this key mediating variable model using data from automobile tyre retailers and compare their model with a rival that does not allow relationship commitment and trust to function as mediating variables.

The relationship between e-banking marketing and competitive advantage has been searched in many literatures. For example, Armstrong and Hagel (1996) argued that businesses that can satisfy both relational and transactional needs will reap the benefits of greater customer loyalty and may gain important insight into the nature and needs of their customer base. In the long run, however, such businesses are likely to create value via usage fees, content fees, transactions and advertising, and/or synergies with other parts of their business. Colgate (1998) looked at the interface between IT and sustainable competitive advantage from a marketing perspective in the retail banking industries in the UK and Ireland. Specific question addressed are; can or have marketing functions in retail banks

utilise the opportunities that IT provides to create sustainable competitive advantage; or have they already done so? The overall result was that the success in e-banking implementation is highly linked with powerful marketing activities.

Mols (1998: 2000) argued that the diffusion of e-banking is determined by technological development, customers, and banks' managers. More customers are likely to be attracted to and develop a preference for e-banking if the technology becomes cheaper and more user-friendly. In this case, the inter-relationship between the technological development and the customer behaviour is likely to promote e-banking. Equally important are the managers' perceptions of and expectations towards e-banking. If they primarily regard e-banking as a self-service channel, fewer resources will be allocated to its development than if it is viewed as an important media for communication between the banks and their customers and a possibility for building close relationships and practicing one-to-one marketing.

Daniel and Storey (1997) looked at drivers for UK banks to select the Internet as a delivery channel. Levy (1998) distinguished between technology-driven and market-driven innovations. Whereas, the impetus for technology-driven innovations is assumed to come from the availability of new technology or a combination of new technologies, market-driven innovations are meant to be a response to a perceived customer need. The former argument found support in the assumption that organisations "do not invent themselves their technology but import them from the environment" (Scott 1998: 229).

Mols (2000) examined various aspects of the motives, perceptions, and expectations connected with the introduction of Internet banking in Danish retail banking. One of the interesting results is that Internet banking will become more important in the future, whereas all other distribution channels are predicted to become less important. Bughin (2004) analysed the factors driving e-banking customer conversion and acquisition for a large sample of Western European banks. Bughin found major differences between the market dynamics of customer acquisition and own bank customer conversion. While customer acquisition is mostly linked to pull factors, own bank customer conversion is mostly linked to aggressive organisational strategies.

Other literatures, however, look at the relationship between marketing e-banking and customers' preference. Wisner and Corney (2001), for instance, evaluated the feedback capabilities of banks in Las Vegas, Nevada with respect to their customer feedback characteristics. Findings showed that many banks lack the most basic methods of feedback collection although most of them employ a number of value-enhancing customer feedback characteristics. A similar angle has been found in the study of Sohail and Shanmugham (2003). The authors examined the customers' preference for e-banking and the factors which they considered influence the adoption of e-banking in Malaysia. The study found that Internet accessibility, awareness, attitude towards change, computer, and Internet

access costs, trust, security concerns, ease of use and convenience are the major factors affecting the adoption of Internet bank services.

2.4.2.2 Acceptance and adoption – psychology and other literature

The issue of customers' acceptance for e-banking is another issue that has been studied deeply in psychology literature. Such works have mainly focused on factors influencing customers' acceptance of e-banking. Moreover, psychology literature has paid more attention to customers' acceptance of e-banking rather than other works through grounding the research on psychological frameworks, such as the theory of reasoned action (TRA) (Fishbein & Ajzen 1975; Ajzen & Fishbein 1980) and the theory of planned behaviour (TPB)¹ (Ajzen 1991). Davis (1989) and Davis et al. (1989) proposed a model, entitled "technology acceptance model (TAM)"², that has been adapted from TRA. The TAM is specific to information system usage whilst the TRA is a general theory of human behaviour (Luarn & Lin 2005).

Luarn and Lin (2005) proposed a model that can provide useful information to e-banking practitioners, while at the same time maintaining TAM's theoretical and psychometric rigor. Liao et al. (1999) investigated how different e-banking products and services are adopted or perceived and whether TPB is capable of predicting the adoption intention of retail bank customers. Theoretically grounded on TAM, Sundarraj and Wu (2005) looked at customer attitudes towards banking

¹ The theories of reasoned action (TRA) and planned behaviour (TPB) are comprehensive theories of many behaviours that specify a limited number of psychological variables that can influence a behaviour, namely (a) intention; (b) attitude towards the behaviour; (c) subjective norm; (d) perceived behavioural control; and (e) behavioural, normative and control beliefs (Albarrac et al. 2001). TRA asserts that one's intentions influence overt behaviour. However, TRA has some limitations. One of the limitations is that TRA only applies to behaviour that is consciously thought out before hand. TPB has been extended from TRA to overcome TRA's limitations. According to TPB, an individual's behaviour can be explained by his or her behavioural intention, which is jointly influenced by attitude, subjective norms and perceived behavioural control. Attitude refers to an individual's positive or negative evaluation of the performance effect of a particular behaviour. Subjective norms refer to an individual's perceptions of other people's opinions on whether or not he or she should perform a particular behaviour, whilst perceived behavioural control refers to an individual's perceptions of the presence or absence of the requisite resources or opportunities necessary for performing behaviour (Luarn & Lin 2005).

² The technology acceptance model (TAM) shows that a user's adoption of a new information system is determined by that user's intention to use the system, which in turn is determined by the user's beliefs about the system. TAM further suggested that two beliefs – perceived usefulness and perceived ease of use – are instrumental in explaining the variance in users' intentions. Perceived usefulness is defined as the extent to which a person believes that using a particular system will enhance his or her job performance, while perceived ease of use is defined as the extent to which a person believes that using a particular system will be free of effort. Among those beliefs, perceived ease of use is hypothesised as a predictor of perceived usefulness. The TAM is not without limitations. It includes the omission of a trust-based construct in the context of electronic or mobile commerce and the assumption that there are no barriers preventing an individual from using an IS if he or she chooses to do so. A detailed discussion about TAM can be found, for instance, in Luarn and Lin (2005), Taylor and Todd (1995), Tan and Teo (2000), and Sundarraj and Wu (2005).

technologies (i.e. Internet and telephone banking) in the Canadian banking sector from the IS perspective that they are all rooted in the IS literature as well as the relationships amongst them.

Taylor and Todd (1995) proposed a model, entitled “decomposed TPB.” According to Tan and Teo (2000), the model is based on both TPB and diffusion of innovations theory (Rogers 1983). The model assumes that a person’s intention to technology is determined by attitude, subjective norms and perceived behavioural control. Built on Taylor and Todd (1995)’s work, Tan and Teo (2000) looked at the attitudinal, social, and behavioural control factors that are significant in explaining intentions to adopt Internet banking services in Singapore.

Chang (2003) examined the behaviour of banks and their customers in the event of Internet banking introduction in Korea. The results imply that the internet banking adoption is dominated by social norm effects. Grounded on a combination of qualitative (i.e. focus groups) and quantitative (i.e. questionnaire survey) research, Waite and Harrison (2004) looked at young adults’ expectations and perceptions of online retail banking information in UK. The study rendered bank Web sites as an ineffective aid for customer’s decision making. Pikkarainen et al. (2004) looked at the factors that influence the acceptance of online banking in the light of TAM. The study found that information about online banking services and its benefits are a critical factor influencing the acceptance.

In addition to psychology literature, other literature did pay attention to the issue of customers’ acceptance of e-banking. For example, Marr and Prendergast (1993) investigated variables influencing customers’ acceptance of retail e-banking. The study was grounded on a Delphi study with New Zealand’s leading experts in the area of retail e-banking. This was followed by a comparison between the themes from the literature and the results of the Delphi study. In an exploratory study, Brown et al. (2003) examined the factors that influence the adoption of cell phone banking in South Africa, as a means of understanding how to possibly increase the rate of adoption. Bhattacharjee (2001) made use of a cross-sectional field survey of American e-banking users to look at the salient determinants of IT continuance intention with the aim of determining the influence of the dependant variable (e.g., user satisfaction).

Likewise, Karjaluoto et al. (2002) examined factors that influence the formation of attitudes towards e-banking and their relation to the use of e-banking products and services in Finland. Karjaluoto et al. stressed banks’ need for providing education targeted not only to guidance in using the Internet, but also to provide more a extensive education in the whole field regarding computers. Grounded on a case study from the Nigerian banking sector, Anandarajan et al. (2000) examined the factors motivating individuals in less-developed countries to accept as well as use IT. The study revealed that incorporating IT without regard to local culture (e.g., social pressure, national culture) could lead to detrimental results.

Some studies looked at the importance of organisational and environmental factors during the development of e-banking. For example, Rao (1999) suggested that a firm that needs to thrive in a networked economy should, first, have a dynamic and flexible organisational structure rather than the way around. Hwang et al. (2004) examined organisational, environmental and project planning factors affecting the adoption of data warehouse technology and the current status of adopting data warehouse technology in the Taiwanese banking sector.

In a conceptual study, Flier et al. (2003) investigated exploration actions³ of incumbent firms with their environments. The study aimed to answer (1) how do incumbent firms and environments co-evolve and how are firm-level adaptation and selection at industry level inter-related? And (2) can large established organisations renew themselves to adapt to their environment? The study was theoretically based on the theories of institutional theory, managerial intentionality, and a co-evolutionary perspective.

In turn, Currie (2000) suggested a group of business drivers that stimulate the introduction of e-banking. Such drivers are ranged from enhancing the competitive position to meeting consumer demands, creating new distribution channels, improving business image, or reducing costs. Morrison and Roberts (1998) looked at the determinants of consideration of new means of distribution for existing services in terms of preference for the service, preference for the distribution vehicle, and the fit between the service and the distribution method, as viewed by customers.

Frambach et al. (1998) suggested that Internet adoption is influenced by many variables acting on the adaptation decision of both suppliers and adopters. On the supplier side, both marketing strategy (e.g., positioning, risk reduction, market support, and information) and innovation development (e.g., perceived customisation, expertise supplier) influence the adoption decision. While on the adopter side, variables, such as perceived innovation characteristics (e.g., relative advantage, complexity, compatibility, and uncertainty), organisation's characteristics (e.g., size, centralisation, age, receptiveness), network participation both within and outside the industry, competitive environment (e.g., intensity of both competition and innovative activities) and information, influence such decision.

However, the introduction of e-banking is not without limitations. Morrison and Roberts (1998) pointed out that the adaptation of e-banking is surrounded by two barriers. The first is that the relative advantage of innovative telecommunications media is yet to be established. The second is the perceived fit between banking and the use of new telecommunications services. In a discussion of the

³ Exploration actions are defined as "strategic renewal actions that add new activities to the current repertoire of the organisation and/or that increase the geographic scope of the firm. Examples are banks entering insurance, or the expansion into a new geographic region. The latter often requires new competencies to cope with new business practices, knowledge about clients, etc" (Flier et al. 2003: 2170).

emergence of multimedia banks⁴, Johnson and Ott (1995) stressed the need for geographic presence to collect and disperse payments as well as the expectation that the transition to multimedia banking will occur via three waves, each representing the point where technological capability meets consumer acceptance: ATMs and telephones, PCs and online services, and e-cash and interactive video.

2.4.2.3 Customers' usage

The relationship between the approaches used by e-banking customers and the success or failure of e-banking products and services is another issue that has been tackled in the literature. The general aim of such literature is to assess actual customers' usage approaches and investigate possible enhancement techniques for improving chances of success. Buck (1996) provided a taxonomy of payment mechanisms in the real world that classifies number of proposals for payment mechanisms on the Internet. Buck also suggests that myriad proposals for Internet payment mechanisms fall into one or other of these classifications. The first proposal is credit mechanisms, such as credit cards or pre-arranged accounts with billing in arrears. The second proposal is the debit mechanisms, such as debit cards, cheques, or pre-paid accounts. The third proposal is the pre-paid tokens, such as traveller's checks, bank drafts, or telephone cards. The fourth proposal is the tangible assets, such as cash.

Filotto et al. (1997) conducted a study on Italian bank customers to investigate demographic characteristics of ATM users and non-users. Chan (1997) conducted a similar study on cardholders in Hong Kong with the aim of examining the demographic and attitudinal differences between active and inactive credit card holders. Al-Ashban and Burney (2001) pointed out that income levels and education play a vital role in the adoption and usage of e-banking. The study aimed to look at the impact of customer characteristics on adoption and use telephone banking in Saudi Arabia.

Grounded on TAM, Suh and Han (2002) looked at determinants of customers' behaviour towards Korean Internet banks. The study found that trust, as other beliefs in addition to ease of use and usefulness, has an impact on the acceptance of Internet banking. Li et al. (2004) tested profiles of bank customers based on their history trials of transactions with the aim of formulating an architecture that provides personalisation services to them. The study proposed a dynamic intelligent three-layer multi-agent distributed architecture and tested on an online banking application. Jayawardhena and Foley (2000) reviewed UK Internet banking web sites to analyse customer expectations and evaluate the Internet banking web sites.

⁴ Multimedia banks are virtual banks that give easy access to a wide variety of financial services which includes credit cards, bill payments, insurance, investments, and brokerage in a single integrated account (Johnson & Ott 1995).

On a discussion of the feasibility of branch, call centre, and PC distribution channels, Frei and Harker (1999) suggested that focusing on sales at the expense of service can actually reduce sales. The main premise of the study was that when firms design their service delivery channels from the perspective of customer interactions, they are better able to anticipate the changes in customer behaviour that will eventually affect their cost structure throughout all of their channels. A similar study can be found in Durkin and O'Donnell (2005).

Durkin and O'Donnell looked at appropriateness in the balance offered between personal and remote delivery for bank retail customer segments (i.e. high and low net worth and Internet-registered and non-registered) regarding communication preferences. The study was grounded on a larger study of customer satisfaction within a large retail bank with an extensive branch network in the UK and Ireland. The study found that while both groups see Internet banking as important irrespective of their relationship status; neither group surveyed (i.e. high and low net worth and Internet-registered and non-registered) shows a desire to replace face-to-face interaction with e-banking solutions.

Aimed at looking at reasons for customers using e-banking, Mantel (2000) made use of surveys and results of several e-banking studies to propose a theoretical framework. The framework includes three primary factors that explain customer e-banking usage, namely (1) household wealth, (2) personal preferences (e.g., convenience, budgeting, control, incentives, involvement, security), and (3) transaction specific factors (e.g., dollar size, variability of dollar amount, offline versus online location, etc.). Howcroft et al. (2002) examined customer's actual and preferred delivery channel usage when purchasing a range of selected financial services, and factors which they consider important in encouraging and discouraging the adoption of telephone and Internet banking. The study revealed that the branch network is still the most popular delivery channel in the acquisition of current accounts, credit-based and investment-based services.

In a study of customer attitudes toward the usefulness of and willingness to use e-banking in Singapore, Liao and Cheung (2002) pointed out that individual expectations regarding accuracy, security, transactions speed, user friendliness, user involvement, and convenience were the most important quality attributes in the perceived usefulness of Internet-based e-retail banking. Palmer (2000) looked at the patterns and problems associated with Internet use for business in Bahrain. Based on the Office of Technology Assessment's (OTA) model of technology Infusion (Coates 1977) to investigate two major questions: What are the patterns of Internet use among business subscribers in Bahrain? And, what problems confront business subscribers to the Internet in Bahrain?

2.4.2.4 Quality

The quality of e-banking products and services and the role it plays in the development of e-banking have received great attention in the literature. Joseph et al. (1999) used the Importance-Performance Grid (Hemmasi et al. 1994) to investigate the role that technology plays in Australian banking and its

impact on the delivery of perceived service quality. Yang et al. (2004) empirically examined the construct of e-banking's quality in the context of business-to-consumer. The study was based upon the quality concepts of customer service, IT, portfolio management, and online service quality. It also made use of an ethnographic content analysis to customer reviews of online banking services to identify online service quality dimensions.

The provision of information varies among the different stages of e-banking development. For example, the provision level varies among Parsons et al. (1996)'s Internet adoption stages or Conger and Mason (1998)'s development stages. According to Waite and Harrison (2004), banks can perform a variety of functions ranging from the provision of basic information to full transactional capability. For Internet in particular, Knight et al. (1999) identified four separate levels of information provision. At the most basic level, an Internet presence merely provides information about the financial institution, with no interaction between the institution and customer, other than a possible e-mail link. The next level allows the institution to receive information, such as an electronic loan application. The third level offers the customer the opportunity to share information, such as account balances or transaction details. The highest level identified allows the customer to process information.

Frost (1999) provided similar stages to that of Parsons et al. (1996). Frost (1999) suggested that the commercialisation of the Internet proceeds in three stages. The first stage is information publishing, where businesses create their web sites to give information and advertise their products. The second stage is transaction based systems, which support organisations and their customers in selling and buying. The third stage is the mass customisation of messages and in more advanced cases, the customisation of products and services.

According to Frei and Harker (1999), the lessons of PC banking and the need to integrate new channels seamlessly into the existing methods of interacting with the customer become even more important in the movement toward Internet banking. As all of the changes in the industry have demonstrated, the Internet will not replace the other channels of interaction with the customer, just like videocassette recorders (VCRs) did not replace the experience of going to the movies. Rather, the Internet will enable entirely new services to be offered as well as increasing the sheer volume of interaction with the customer, if done right. The need to take a holistic approach to channel/process management will only increase as we move towards e-banking.

Aladwani (2001) looked at the perceptions of banks' executive, IT managers, and potential customers with regard to the drivers, development challenges, and expectations of online banking in Kuwait. Groth et al. (2001) examined the effects of the type of service mechanism as well as the mode of service delivery on perceived service quality and customers' attributions of service quality. Kardaras and Papathanassiou (2001) explored e-banking opportunities for improving corporate customer services in the Grecian banking sector. The study was drawn on the "customer resource life cycle"

(CRLC) framework (Ives & Learmonth 1984) and it integrated CRLC with customer satisfaction and service quality issues.

Lang and Colgate (2003) investigated the impact of IT in a relationship marketing context in New Zealand, particularly on how customers use a combination of IT channels to interact with their bank and how this interaction affects the relationship quality between the customer and the bank. The study suggested that banks which fail to provide channels that their customers seek and value will find it more difficult to forge strong relationships with their customers. In a preliminary study, Ibbotson and Moran (2003) undertook a study to provide some insight into the state of the relationship between Northern Ireland banks and their small business in what is a mainly “branch-based” banking environment at present.

Colonia-Willner (2004) examined the performance of ATMs’ customers in action during the challenging moments of a bank merger. Overall, the findings suggest a large unused potential of self-service systems as well as help generate recommendations for the design of such systems that recognise each customer profile and pace the machine responses to meet the customer’s needs. González et al. (2004) suggested that satisfying and exceeding the requirements of e-banking customers can be achieved through linking such requirements with the internal procedures of the bank. The suggestion was based on a case study on introducing e-banking in the National Bank of Spain (NBS).

Focusing on banking web sites, Bauer et al. (2005) looked at services and characteristics that transform a web site into a portal as well as into the dimensions that determine the customer’s evaluation of the portal’s service quality. The study was grounded on an online questionnaire presented to e-banking portals of German users. The study validates a measurement model for the construct of web portal quality based on security and trust, basic services quality, cross-buying services quality, added value, transaction support, and responsiveness. Such identified dimensions can reasonably be classified into three service categories: core services, additional services, and problem-solving services.

2.4.2.5 Trust

The issue of customer’s trust has been investigated deeply in e-banking literature. The general aim of such studies is to look at factors that can enhance the adaptation of e-banking products and services. At this stage, it is worth to defining the meaning of trust. Yousafzai et al. (2003: 849) defined customer’s trust on e-banking as:

“A psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfil its obligations, irrespective of a customer’s ability to monitor or control bank’s actions.”

Buck (1996) suggested that electronic marketplace is becoming a significant component of the world economy only if the problem of making payments a secure mechanism that can cost-effectively support transactions in a distributed environment is addressed. Accordingly, Buck identified the key commercial requirements that successful use of the Internet will impose on a payment mechanism, and evaluated the different types of proposed mechanisms against the requirements to determine which are really suitable for electronic commerce.

According to BIS (1998), the most important risk categories for most e-banking activities, especially for diversified international banks, are operational, reputational, legal, cross border-risks (e.g., different regulatory requirements), and other risks (e.g., interest rate risk). Moreover, some of the specific problems cut across risk categories. For example, a breach of security allowing unauthorised access to customer information can be classified as an operational risk, but such an event also exposes the bank to legal risk and reputational risk. Even though these different types of risks may result from a single problem, appropriate risk management may require several remedies to address each of these different risks.

Tyler and Stanley (2001) examined the human relationship between banker and corporate customer with the aim to evaluate corporate banking services and relationships. Tyler and Stanley argued that the banks are operating in such a way as to undermine personal relationships, even as they try to market them. They further argue that if the banks genuinely wish to support and bolster the human relationship at the heart of corporate banking, they must seek to put the relationship manager back at the core, rather than the margin of service arrangement and delivery. Built on the work of Morgan and Hunt (1994), Rexha et al. (2003) investigated the impact of satisfaction, trust, and the use of e-banking on commitment towards current banks in Singapore and Australia. The study developed a framework for the measurement of security levels of any e-banking product or service.

In a study investigating the security of e-banking, Claessens et al. (2002) pointed out that e-banking products and services should be developed to address general security requirements, including confidentiality, authentication, data authentication, and non-repudiation⁵. Kim and Moon (1998) evaluated a systematic methodology for the design of customer interfaces that explicitly aim to generate certain target feelings in the customer while interacting with e-banking. The study focuses on the feeling of trustworthiness that the interface of an e-banking product or service should draw in customers carrying out financial transactions.

⁵ Data authentication (i.e. data origin authentication and data integrity) allows one to detect manipulation and replay of data, by unauthorised parties. Data manipulation includes insertion, deletion, and substitution. Non-repudiation prevents an entity from denying previous commitments or actions (Claessens et al. 2002).

Mukherjee and Nath (2003) conceptualised trust in e-banking from the lenses of the commitment-trust theory of relationship marketing (Morgan & Hunt 1994). An important contribution concerns how trust is developed and sustained over different levels of customer relationship in online banking. The study proposed a conceptual model of trust in e-banking, entitled “trust in online relationship banking,” that looks at trust from the perspective of shared value, communication, opportunistic behaviour, and commitment.

In a similar study, Yousafzai et al. (2003) looked at the elements of trust and risk in e-banking within the context of the marketing of financial services. The study proposed a theoretical model for trust in e-banking with two dimensions: perceived security and perceived privacy. The model is not all embracing in a sense that it does not attempt to capture every possible antecedent of trust. Rather, it focused on capturing the most significant set of trust antecedents and presenting them as an integrated entity. Further, Yousafzai et al. (2005) examined the effectiveness of potential trust-building strategies for e-banking and their impact on customers’ perceptions. This suggested that banks need to use a portfolio of strategies to build the customer’s trust.

2.4.3 Supply-side focus

The review of e-banking literature categorises supply side factors of e-banking research into five factors: competition, resources, implementation, efficiency, and productivity.

2.4.3.1 Competition

A great deal of literature has investigated the role of e-banking products and services in increasing the intensity of competition among banks. Some of the articles looked at tactical approaches that banks use to ensure successful diffusion of e-banking products and services. Others investigated distinctive attributes for e-banking products and services that can give a competitive advantage. A few even studied as many as three or four aspects of competition in the e-banking arena.

One such aspect is the issue of organisational-informational fit. Through a case study of major Australian banks, Broadbent and Weill (1993) constructed an alignment model that emphasises the interdependence of firm-wide and information systems-alignment factors to look at organisational policies and practices that enhance the business and information strategy alignment. Nelson (1999) addressed trends and patterns surrounding the interface between the marketing and information services functions within the banking industry. The author suggested that many banks lack alignment between their marketing and information service functions, stressing the need for improving such cross-functional interface as it may lead to more effective use of information technology to support the marketing function in many banks.

Bauer and Colgan (2001) reviewed the relationship between the generic and Internet strategies of retail institutions in the financial services industry and, thus, determine whether there exists an

alignment between them. The corporate strategy was conceptualised through Porter (1985)'s generic strategies. For the Internet strategy, the three generic strategies translated into certain actions in the marketplace and in the adoption of specific information technologies. Daniel and Storey (1997) identified the strategic responses of UK retail banks to e-banking with the aim of identifying the different approaches UK banks are taking towards e-banking, understanding the strategies behind these approaches, and identifying the problems and concerns managers have in this area. Frambach et al. (1998) assessed the influence of different variables over which banks have control on the adoption of e-banking in the Dutch banking sector in addition to adopter-side variables. The study corroborates that not only adopter-side variables significantly influence innovation, but supply-side variables as well.

Accordingly, Rao (1999) suggested that banks should work with their customers to create and improve e-banking products and services while working cooperatively with their suppliers and partners to create high-quality e-banking products and services. As boundaries between these traditional constituents blur, it is important for banks to continuously evaluate their position in, and contribution to, the segment of the value chain they compete in. It is also important to constantly scan the environment and the competitive landscape to look for opportunities and be willing to change and deliver products and services in new ways.

Courchane et al. (2002) examined the optimal exercise of strategic real options to invest in Internet banking technology within a two-stage game: parameterised by the distribution of bank size and uncertainty over the profitability of investment, and empirically tests the results. Courchane et al. found that both market concentration and a bank's market share strongly influence the probability of bank investment in an Internet banking site. Bensebaa (2004) examined the strategic actions underlying the reputations of some successful e-business models. Accordingly, Bensebaa proposed an approach that links reputation-building and more generally the development of intangible assets to Smith et al. (1992)'s concepts on the "competitive dynamic trend", concepts used to examine the rivalry between firms and competitive positioning.

Nellis et al. (2000) assessed the potential for the development of a pan-European banking model and the likelihood that there will be a subsequent drift towards the emergence of long-term globalisation strategies. Yakhlef (2001), through a study of four Swedish banks, examined the changes in the way banks conduct their businesses in implementing the Internet and how these changes affect the bricks-and-mortar distribution channels of banks. Willcocks and Plant (2001) looked at strategies that leading business-to-consumer corporations harness the Internet to acquire new customers and increase their market share.

Altinkemer (2001) discussed the way many companies are joining forces with others to round up their offerings. The study reviewed the practice of bundling in the e-banking context and it suggested that many possibilities for new services exist, but these services must initially be subsidised until the

critical mass is achieved, and customers become accustomed to the convenience. In a conceptual study, Hensmans et al. (2001) looked at the challenges which emerged from changing the business models of incumbent banks as consequences of the emergence of 'clicks' entrances. Gurau (2002) investigated and analysed the present situation of e-banking in Romania, and the appropriate strategies for the successful implementation and development of e-banking services.

Bauer and Colgan (2001) suggested three mutually exclusive technological options for retail banks opting for an Internet banking solution: proprietary, open, and denial. For proprietary, software is custom-made for the requirements of the institution and becomes the single point of access via the Internet. Retail banks looking for a proprietary strategy will implement their own Internet applications and data interfaces. However, for open adoption of an open standard provides customers with a choice of customer software, such as Internet and/or popular personal financial management. Denial of online delivery and concentration on traditional distribution channels avoids competing on the Internet. Retail banks that choose not to offer online transactional services over the Internet will most likely still operate a small Web site with some information for advertising and public relation purposes.

Finally, Barrutia and Echebarria (2005) proposed a conceptual framework, entitled "Internet, consumer power and consumer value," to measure the impact of the Internet in Spain's retail banking sector. The framework suggests that the Internet (1) increases the bargaining power of customers, (2) reduces barriers to entry, and (3) increases the threat of substitute products or services. As a consequence of these three drivers, rivalry among existing competitors increases. The competitors, therefore, must define a new competitive strategy, taking into consideration their new business capabilities. The new competitive strategy of the companies and growth in consumer bargaining power creates more value to customers.

2.4.3.2 Resources and capabilities

A group of studies looked at different approaches followed by banks to acquire resources and competences for the development of e-banking products and services. While some articles stress on human resources, others were more towards technical resources. The general trend of such studies is to stress the importance of resources and competences acquisition in the development of e-banking products and services. Yoffie and Cusumano (1999) suggested that banks should create a compelling, living vision of products, technologies, and markets that are tightly linked to action while at the same time hiring and acquiring managerial and technical experiences.

Smith (1985) discussed changes in technology within UK and French banking sectors in the context of information security and accordingly, suggests that IT people should work more closely with the top management of their banks. Lymperopoulos and Chaniotakis (2004) construed an analytical framework to investigate branch employees' attitudes towards e-banking adoption in Greece and

whether these attitudes vary in relation to respondents' personal characteristics and those of their employers.

In a case study of Meridian Bancorp, Banker and Kauffman (1991) proposed a method for measuring the business value of IT, entitled "business value linkage (BVL) impact analysis." The study constructed management science models to gauge the impact of ATMs on branch teller labour productivity and retail deposit market share. Morisi (1996) discussed the impact of computer technology on the business operations of commercial banking in the United States. The author argued that although technology provides banks with all such features, it eliminates jobs.

Literature on e-banking has investigated the acquisition approaches not only of human resources, but also technical competences and capabilities. Such competences and capabilities are categorised into three categories according to their degree of functionality (Pennathur 2001; FDIC 2000). Category 1 includes systems that allow the transmission of publicly available information (e.g., non-sensitive e-mail). Category 2 includes systems that allow customers to share sensitive information with banks (e.g., online loan application). Category 3 represents the highest degree of functionality and it includes systems that allow customers to interact with banks (e.g., funds transfer).

Colgate (1998) gathered information on all IT applications that have the potential to impact on the sustainable competitive advantage rather than just IT applications that are widespread within the industry. Chen (1999) applied the critical success factor (CSF) approach to identify the appropriate CSFs underlying three types of strategy in the banking industry. Results suggested four composite CSFs: bank operation management ability, bank trademark development ability, bank marketing ability, and financial market management ability. Frei and Harker (1999) suggested that banks need to understand the interactions among e-banking products and services.

Nellis et al. (2000) pointed out that three major factors can be identified as representing the most important forces that have been driving, and will continue to drive the European banking industry over the next decade. The first force is the impact of the 1986 European Commission's programme aimed at producing a single market in financial services. The second force is the depth of integration and globalisation of financial markets. This is creating an environment where institutional investors are successfully challenging the semi-monopoly positions of commercial banks in deposit gathering and loan financing facilities. The third force involves the potential for still furthering innovation in both the technical delivery of financial products and services through information technology and product development, with special implications for the areas of derivative instruments and securitisation.

2.4.3.3 E-Banking Implementation

The matter of e-banking implementation is another issue that has received a great deal of attention in the literature. The general aim of such literature is to propose theoretical tools that enhance the

success of e-banking implementation. However, Section 2.6, technology implementation literature, looks in details to the empirical work under this category.

2.4.3.4 Efficiency

“Banking must do three things in order to capture the potential of using new technology. First, operations must be recognised as a separate function and the strategy of operations must be tied to the bank’s overall business strategy - either cost leadership or differentiation. I believe in order for the above events to take place the bank must be at least internally supportive of operations. Increasing emphasis is being placed on the operations manager to upgrade and supply more information. Yet, if the operations manager does not have a direct strategy tied to the overall business plan, investments in technology will not be wise. Bankers must realise that technology in and of itself will not provide the competitive advantage. Banking has been a staid industry for a very long time. Competition is something new that a lot of bankers are trying to counter by throwing money at technology. The successful banks will be the ones that will recognise the potential of operations as a strategic weapon.” (Gupta et al. 2001: 781)

Devlin (1995) pointed out that developments in IT may reduce the cost of entry into certain retail financial services markets, in particular retail banking, by reducing the dependence on the existence of a branch network to distribute product offerings. Rao (1999) examined the impact of the Internet on the value chain of three industries that have been either radically altered by the Internet, or that are facing tremendous challenges as they head into the future: (a) retailing, (b) banking, brokerage and financial services and (c) the music. Hancock et al. (1999) investigated the potential effects of consolidation on future banking operations through looking at the experience of the Federal Reserve in consolidating its Fedwire electronic funds transfer operation.

Frei and Harker (1999) discussed efficiency aspects among PC banking, branches, and call centres. Khiaonrong (2000) illustrated the experiences undertaken in the reform of rudimentary payment systems in an emerging economy (i.e. Thailand). The study looked at issues relevant to payment systems and it showed that the payment system has become a key component that underpins economic development. Benaroch and Kauffman (2000) illustrated the value of applying real options analysis in the context of a case study involving the deployment of point-of-sale (POS) debit services by the Yankee 24 shared e-banking network of New England. Moreover, they also attempted to use real options analysis concepts by examining claimed strengths of this analysis approach and balancing them against methodological difficulties that this approach is believed to involve.

Lee and Whang (2001) suggested that the success in e-business is linked with the companies’ ability to deliver the goods and services at a reasonable cost. Such mechanism can be achieved through making good use of information and leveraging existing resources to co-ordinate order-fulfilment activities. Lee and Whang (2001) suggested two core concepts for making e-fulfilment efficient: making more use of information flows than physical flows, and capitalising on current physical pipelines and infrastructures as much as possible for the last mile of delivery. Such two-core concepts are linked to five strategies: logistics postponement, dematerialisation, resource exchange, leverage

shipments, and the brick-and-mortar model. Accordingly, Lee and Whang (2001) suggested that choosing the right e-fulfilment strategy for a particular company depends on both the company's business environment and the characteristics of its products.

Saini and Johnson (2005) examined drivers of company performance in e-commerce from a capabilities perspective. The study conceptualises three firm capabilities that are critical for superior company performance in e-commerce: IT capability, strategic flexibility and trust-building capability. The extent and nature of market orientation is conceptualised as a platform for leveraging e-commerce capabilities. The study found that IT capability and strategic flexibility affect performance, given the right market orientation. Pennathur (2001) looked at the current issues in e-banking and the banks' risk management techniques regarding several new and old banking risks. The study was mainly grounded on a review of publications of the Bank of International Settlements (BIS) and the Federal Deposit Insurance Corporation (FDIC).

Mols (2001) explored why some retail banks, more than others, are vigorous in their promotion of and success in changing their distribution channel structure by introducing e-banking. Mols found that management support, orientation towards the future, the willingness to let old channels be cannibalised by new channels, and company size are important factors when companies want to be effective in the introduction and exploitation of the new e-channels. Thus, the management team seems to face the painful and difficult task of abandoning or destroying old deserving ways of doing things, and instead, embracing new technologies and building new routines.

In addition, Mols (1999) pointed out that according to the economic distribution channel theory, the "ideal" distribution system can be determined by answering three questions: (1) what do customers want in terms of service output from the distribution channel and how much are they willing to pay for a given service level? (2) How can the wanted services be provided to them? And (3) what are the costs of the alternative distribution channels? Mols suggested that the answers to these questions would determine the most efficient distribution channel that meets customers' needs.

Gupta et al. (2001) discussed how new technologies are being employed by various banks to streamline their operations and creating sustainable competitive advantage. The study used a conceptual operations strategy framework consisting of four elements: mission, distinctive competence, objective, and policies to discuss the managerial implications of new technologies employed by various banks. Humphrey et al. (2006) looked at the variation over time in payment costs and ATM and branch service delivery expenses. Using cross-country panel data, the study searched for the production function that relates six payment and service delivery output characteristics to the annual operating cost of 12 European countries' banking sectors between 1987–1999.

2.4.3.5 Productivity

A great deal of literature has investigated the issue of productivities in e-banking. While some studies looked at new approaches that increase the productivity, others examined the existing productivity tools implemented by banks. Canals (1993) recognised that the concepts of value chain and bank configuration could be employed to develop a bank's competitive advantage. The study identified four sources of a bank's competitive advantage: manpower, financial management, asset base, and intangible assets. Devlin (1995) illustrated how the main influences on e-banking products and services have developed during the past three and a half decades.

Humphrey (1995) provided a conceptual model of a typical payment cycle. The principles of payment systems involve the discharge of financial obligations between two or more payment participants. Gupta and Collins (1997) evaluated the contribution of IT to various productivity and efficiency measures in banks in the state of Florida, USA. The study suggested that traditional measures of productivity (e.g., decrease in operating costs, increase in profits) continue to be the most popular measures of efficiency and return on investments although such measures may not be suitable for IT and technologies.

Jayawardhena and Foley (2000) suggested many advantages for banks from utilising the Internet as a delivery channel. Such advantages include saving costs, enlarging customer base, improving marketing and communication, and enabling mass customisation, innovation, and non-traditional banking areas (e.g., insurance, stock brokerage, etc.). Rangan and Adner (2001) suggested that the Internet increases the gap between profitable growth and its achievement because many e-businesses allow what is technologically feasible overshadows what is strategically desirable. Managers aiming to capitalise on the Internet to achieve profitability growth need to understand the full implications of the strategies they choose.

Gupta et al. (2001) argued that bank operations management plays an important role in e-banking as it converts inputs (e.g., employees, facilities, etc.) into outputs (e.g., loans, deposits, etc.). Accordingly, Gupta et al. suggested some guidelines that bank operations managers should follow during such a transformation system. Banks must decide on what business strategy they will use (e.g., cost leadership, product differentiation, etc.), perform a careful analysis of external (e.g., competition, customers, etc.) and internal (e.g., resources, skills, etc.) forces to allow the banks strategy to define the intention to compete. Based on what business strategy banks choose, the operations strategy must be aligned with the business strategy.

Siegel and Carvalho (2002) emphasised the factors relating to business models and the financial return that adoption of account aggregation⁶ technology can bring. The study identified business models for adoption, proposed a method for calculating the return on investment related to the adoption of this technology and applied the proposed method to estimate the return for various business models. In a longitudinal case, Samiotis and Poulymenakou (2002) examined the claim that knowledge management is rooted in the foundations of contemporary strategic management and, more specifically in the resource-based view of the firm (e.g., Barney, 1991).

Swierczek and Shrestha (2003) analysed the impact of IT on the productivity of commercial banks in Japan compared to that of other banks in Asia-Pacific countries (i.e. Australia, Bangladesh, Hong Kong, India, Indonesia, Malaysia, New Zealand, Philippines, South Korea, Sri Lanka, Taiwan, and Thailand). Shu and Strassmann (2005) looked at IT productivity paradox in the banking industry with the aim of measuring IT contributions to the banks' corporate profit. The study suggested that IT, when it is compared with interest expense, non-interest expense, staff cost, and operating expense, is the only input variable that provides more dollar value than the input cost on the margin.

2.4.4 Conclusion

The review of e-banking literature provided much insight into both demand side factors that include marketing, acceptance, usage, quality, and trust, and the supply side factors that include competition, resources, implementation, efficiency, and productivity. According to Mukherjee and Nath (2003) and Aladwani (2001), most of the extant research on e-banking can be summarised by three characteristics. First is that the research mostly lends qualitative insights, exploring e-banking as a phenomenon and logical process rather than as a model with a set of determinable inputs and outputs. Second is that the research has been mostly very specific, dealing with best practice case studies. Third is that most of the research has been anecdotal, with little theoretical background.

Next I look at the theoretical foundations of value creation and capabilities building in e-banking.

2.5 Strategic perspectives on value creation

2.5.1 Introduction

As we enter the twenty-first century, [e-business], with its dynamic, rapidly growing, and highly competitive characteristics, promises new avenues for the creation of wealth. Established firms are creating new online businesses, while new ventures are exploiting the opportunities the Internet provides... The increase in the number of e-business transactions at major web sites ... highlights the extraordinary

⁶ Account aggregation is a tool that allows individuals to view all their financial, credit, reward programs and other online accounts at different institutions from one site on the Internet (Siegel & Carvalho 2002).

growth and transformation of this new global business landscape,” (Amit & Zott 2001: 493-494).

E-banking, as any other form of e-business, has the potential to furnish customers and banks with tremendous advantages. For customers, e-banking has the potential to reduce costs in accessing and using the banking services, increase comfort and time-saving, increase the transaction's processing time, and promote better administration of funds. For banks, e-banking has the potential to improve market image, reduce transaction costs, provide better and quicker responses to market evolution, increase market penetration, and constitute new advertising and selling channels (Bauer & Colgan 2001; Aladwani 2001; Gurau 2002; Yousafzai et al. 2003).

The potential advantages that e-banking furnish customers and banks influence the future distribution channel structure. According to Mols (1999), the Internet influences the future distribution channel structure in two ways. The first way is that the Internet is, in itself, a new distribution channel for financial services. Not only are the costs of using it different from those of other available distribution channels, but also the service output it provides is different from the service output provided by traditional distribution channels.

The second way is related to the relationship between new distribution channels and customers. Many customers invest time and resources in becoming PC-literate and in getting to know the Internet. Others do not become PC-literate and do not get familiar with the Internet. These two customer segments are not likely to have the same wants and thus will not be willing to pay the same price for e-banking. The changes in these two elements are then input to a change process where the structure of the distribution channel is adopted to the new environment.

Given such large advantages as well as the structural changes in distribution channels, the question now is whether conventional theories, such as the value chain framework (Porter, 1985) and Schumpeter's theory of creative destruction (Schumpeter, 1942), of how value is created can fully explain the value creation potential of e-banking? The driver behind this question, according to Amit and Zott (2001), is that the characteristics of e-businesses combined with the enormous reduction in operational costs allow for critical changes in the way companies operate and in how economic exchanges are structured. They not only open new opportunities for value creation, but also challenge conventional theories of how value is created. The value creation potential in conventional theories, the applicability of these theories in the context of e-banking, and the emerging theoretical value creation frameworks in e-business are the concerns of this section.

2.5.2 Conventional perspectives on value creation

According to Amit and Zott (2001), there are several conventional theories that make valuable suggestions about possible sources of value creation in a company. This section focuses on how value is created within the theoretical views of Schumpeter's theory of creative destruction (Schumpeter

1942), the resource-based view of the firm (e.g., Barney 1991), and transaction costs economics (Williamson 1975), the value chain framework (Porter 1985) and its associated concepts of generic (Porter 1980) and positioning strategies (Porter 1996), strategic network theory (e.g., Dyer & Singh 1998), and accelerating capability building (Hagel & Brown 2005). This section provides a brief summary of how value is created within these theories as well as the applicability of these theories in the context of e-banking.

2.5.2.1 Schumpeterian innovation

Schumpeter (1934) pioneered the theory of economic development and new value creation through the process of technological change and innovation. Schumpeter viewed technological development as discontinuous change and disequilibrium resulting from innovation. Schumpeter identified several sources of value creation, including the introduction of new goods or new production methods, the creation of new markets, the discovery of new supply sources, and the reorganisation of industries. In Schumpeter's theory, innovation is the source of value creation. Schumpeterian innovation emphasises the importance of technology and considers novel combinations of resources, and the services they provide, as the foundations of new products and production methods. Such foundations and methods lead to the transformation of markets and industries, and hence to economic development.

As innovative entrepreneurs exploit new opportunities for value creation, the evolution of the resulting e-businesses can be described in terms of Schumpeter's model of creative destruction. However, e-banking, as any other form of e-business, broaden the notion of innovation since it spans bank and industry boundaries, involves new exchange mechanisms and unique transaction methods rather than merely new products, or production processes, and fosters new forms of collaborations among firms. An example of such transformational impact of e-banking on banks, industry, and the economy can be seen from the lens of Freeman's "taxonomy of innovations" (Freeman 1985; 1988) that categorises technologies into incremental innovations, radical innovations, changes of "technology systems," and changes in "techno-economic paradigm."⁷ Furthermore, whilst innovation is certainly a major driving force of the economic development of new and established markets, it may not be the only source of value creation in e-banking (Amit & Zott 2001; Passiante & Elia 2003).

2.5.2.2 Resource-base view of the firm

One of the conventional approaches about business strategic management is the resource-based view of the firm. The approach traces back to Edith Penrose's classic *The Theory of the Growth of the Firm* (Penrose 1959). It sees the firm as a collection of resources and capabilities that include all of the financial, physical, human, and organisational assets used by a firm to develop, manufacture, and

⁷ The concept of techno-economic paradigm was first developed by Carlota Perez (see Perez 1985).

deliver products or services to its customers (Penrose 1959; Prahalad & Hamel 1990; Barney 1991; Peteraf 1993; Amit & Schoemaker 1993; Wernerfelt 1997).

The approach assumes that resources and capabilities are heterogeneously distributed across competing firms (Barney 1991). Such distribution makes firms different in terms of the resources they have and capabilities they control (Amit & Zott 2001). These differences can be long lasting and can explain why some firms consistently outperform other firms (Barney 2001). Indeed, Dyer and Singh (1998) argue that differential firm performance is fundamentally due to firms' heterogeneity. Therefore, positioning and uniquely merging a set of complementary and specialised resources and capabilities is a path to competitive value creation (Barney 1991).

However, a firm's resources and capabilities are valuable if, and only if, they reduce a firm's costs or increase its revenues compared to what would have been the case if the firm did not possess those resources (Passiante & Elia 2003). Since this is a dynamic situation, Teece et al. (1997) has articulated the dynamic capabilities approach. The crucial issue in this recent approach is the way in which the firm comes to terms with the continuous emergence of novel circumstances caused by rapid technological change. Accordingly, creating new productive knowledge and coordinating the cumulative process of knowledge development and creation are the firm's central strategic problems (Loasby 1999; Knudsen & Madsen 2002).

E-banking, as any other form of e-business, presents a challenge from the point of view of both the resource-based view of the firm and the dynamic capabilities approaches. On one side, information-based resources and capabilities tend to have a higher degree of mobility than other types of resources and capabilities (Passiante & Elia 2003). On the other side, as such resources and capabilities increase in their importance within firms, value migration is likely to increase, and the sustainability of newly created value may be reduced. Therefore, the problem of value preservation or sustainability is important for value creation (Amit & Zott 2001).

2.5.2.3 Transaction costs economics

Transaction costs include the costs of planning, adapting, executing, and monitoring task completion (Williamson 1983). Transaction cost economics looks at drivers behind companies internalising transactions that might otherwise be conducted in markets (Coase 1937). The main theoretical framework was developed by Williamson (1975; 1979; 1983). Williamson suggested that "a transaction occurs when a good or service is transferred across a technologically separable interface. One stage of processing or assembly activity terminates, and another begins" (Williamson 1983: 104).

Transaction cost economics identifies transaction efficiency as a major source of value, as enhanced efficiency reduces costs. It suggests that value creation can derive from the attenuation of uncertainty, complexity, information asymmetry, and small-numbers bargaining conditions (Williamson 1975).

Moreover, reputation, trust, and transactional experience can lower the cost of idiosyncratic exchanges between companies (Williamson 1979; 1983).

The transaction cost approach provides more insights about value creation in e-banking. E-banking, as any other form of e-business, implies reduction in transaction costs. Such costs include either direct cost, such as communication and travel, or indirect cost, such as adverse selection and moral hazard. This may result from an increased frequency of transactions, a reduction in transaction uncertainty, and a reduction in asset specificity. The small-numbers bargaining condition may be relieved in e-banking as there is a possibility for large numbers of previously unconnected parties (e.g., buyers and sellers) to interact.

2.5.2.4 Value-chain analysis

The value chain analysis is a method of decomposing a firm into strategically important activities and understanding the impact of such activities on cost and value (Stabell & Fjeldstad 1998). It suggested that supernormal returns are primarily a function of a firm's membership in an industry with favourable structural characteristics (Dyer & Singh 1998). Such method includes defining the strategic business unit, identifying critical activities, defining products, and determining the value of an activity. Associated with Porter (1980), the value chain analysis has been integrated in a theoretical view called the industry structure view (Porter 1985).

Porter defines value as "the amount buyers are willing to pay for what a firm provides them. Value is measured by total revenue ... A firm is profitable if the value it commands exceeds the costs involved in creating the product" (Porter 1985: 38). Analysing value creation at the firm level, the value chain analysis suggested that value can be created by differentiation along every step of the value chain, through activities resulting in products and services that lower buyers' cost or raise buyers' performance. Therefore, sources of value creation are policy choices, linkages, timing, location, sharing of activities among business units, learning, integration, scale, and institutional factors (Porter 1985; Amit & Zott 2001).

The value chain analysis seeks to answer two main questions: (1) what activities should a firm perform and how, and (2) what is the configuration of the firm's activities that would enable it to add value to the product and to compete in its industry (Amit & Zott 2001). The approach suggested that firms can achieve a sustained competitive advantage by erecting barriers to entry. Accordingly, firms should continue to raise these barriers through reinvestment of earnings if they are to successfully deter entry by potential competitors and mobility by existing competitors across the industry is strategic groups (Lado et al. 1992).

The discussion on value chain analysis is linked with the discussion of Porter's concepts of generic (1980) and positioning strategies (1996). Porter (1980) argues that a firm which optimally positions itself within its industry by leveraging its strengths can generate superior returns. Porter provides a

positioning map of where a firm positions itself within its industry and argues that a firm's strengths ultimately fall into one of two headings: cost advantage or differentiation. By applying these strengths in either a broad or narrow scope, three generic strategies result: cost leadership, differentiation, and focus.

Cost leadership strategy aims to be the low cost producer in an industry for a given level of quality. The firm sells its products either at average industry prices to earn a profit higher than that of rivals, or below the average industry prices to gain market share. Firms that succeed in cost leadership often have (1) access to the capital required to make a significant investment in production assets, (2) skill in designing products for efficient manufacturing, (3) high level of expertise in manufacturing process engineering, and (4) efficient distribution channels.

Differentiation strategy aims to develop a product or service that offers unique attributes that are valued by customers and that customers perceive to be better than or different from the products or services of the competition. The value added by the uniqueness of the product may allow the firm to charge a premium price for it, hoping that the higher price will more than cover the extra costs incurred in offering the unique product. Firms that succeed in a differentiation strategy often have (1) access to leading scientific research, (2) a highly skilled and creative product development team, (3) a strong sales team with the ability to successfully communicate the perceived strengths of the product, and (4) corporate reputation for quality and innovation.

Focus strategy concentrates on a narrow segment and within that segment attempts to achieve either a cost advantage or differentiation. The premise is that the needs of the group can be better served by focusing entirely on it. A firm using a focus strategy often enjoys a high degree of customer loyalty, and this entrenched loyalty discourages other firms from competing directly. Firms that succeed in a focus strategy are able to tailor a broad range of product development strengths to a relatively narrow market segment that they know very well.

The generic strategy followed by a firm is correlated with the way it is positioned in the market. Porter (1996) suggested that strategic positioning emerges from three distinct bases: variety, needs, and access. Such sources are not only mutually exclusive and often overlap, but also the position emerging from any of the sources can be broad or narrow. However, whatever the basis, variety, needs, access, or some combination of the three, positioning requires a tailored set of activities because it is always a function of differences on the supply side, that is of differences in activities.

Variety-based positioning is based on producing a subset of an industry's products or services. It is called variety-based positioning because it is based on the choice of product or service variety rather than customer segments. Variety-based positioning makes economic sense when a firm can best produce particular products or services using distinctive sets of activities. Needs-based positioning means serving most or all the needs of a particular group of customers. It comes closer to traditional

thinking about targeting a segment of customers. It arises when there are groups of customers with different needs, and when a tailored set of activities can serve those needs best. Access-based positioning means segmenting customers who are accessible in different ways. Although their needs are similar to those of other customers, the best configuration of activities to reach them is different.

Porter (2001) suggested two fundamental factors that determine profitability: industry structure, and sustainable competitive advantage. For the industry structure, via examination of a wide range of industries in which the Internet is playing a role reveals that the net negatively affects the industry's structure. For the competitive advantage, however, the successful deployment of the Internet needs a sustainable competitive advantage that can be reached only through operational effectiveness, or strategic positioning.

Porter (2001) also suggested that gaining competitive advantage in the Internet does not require a radically new approach to business. Rather, it requires building on the proven principles of effective strategy as the Internet makes sources of competitive advantage more valuable. Accordingly, Porter (2001) stressed the need for companies to distinguish themselves through strategy as the Internet tends to weaken industry profitability without providing proprietary operational advantages. Porter suggested that the winners will be those that view the Internet as a complement to, rather than a cabalism of traditional ways of competing.

E-banking, as any other form of e-business, presents new opportunities for creating value. The value creation opportunities may result from new combinations of information, physical products, and services, innovative configurations of transactions, and the reconfiguration and integration of resources, capabilities, roles, and relationships among suppliers, partners, and customers. The value chain analysis fails to capture such opportunities (Amit & Zott 2001; Passiante & Elia 2003).

2.5.2.5 Strategic networks

Another conventional approach about business strategic management is the strategic networks approach. This approach focuses less on capabilities within the firm and more on opportunities to achieve competitive leverage by mobilising resources outside the firm. Strategic networks are cooperative arrangements between two or more firms to improve their competitive position and performance by sharing resources (Ireland et al. 2002). According to Amit and Zott (2001), the strategic network approach to value creation seeks to answer four main questions: (1) why and how strategic networks of firms are formed? (2) What is the set of inter-firm relationships that allows firms to compete in the marketplace? (3) How firms create value? And (4) how do firms' differential positions and relationships in networks affect their performance? The approach suggests that productivity gains in the value chain are possible when trading partners are willing to make relation-specific investments and combine resources in unique ways. Thus, idiosyncratic inter-firm linkages may be a source of value creation (Dyer & Singh 1998).



E-banking, as any other form of e-business, presents a challenge to the strategic networks approach as this only partially explains the value creation potential of firms based on new business models. Given that e-business is characterised by unprecedented reach, connectivity and low-cost of information processing power, it opens up entirely new possibilities for value creation through the structuring of transactions in new ways. Such ways are not fully captured by the strategic network approach (Amit & Zott 2001; Passiante & Elia 2003).

2.5.2.6 Accelerating capability building

Many scholars have argued that neither the resource-based view of the firm, nor the strategic networks approach is a complete approach that can fully explain value creation. Accordingly, they call for an integrated approach from both approaches. For example, Gulati (1999) and Afuah (2000) emphasised the importance of resources and capabilities of network partners for a firm's performance. Lavie (2006) extended the resource-based view of the firm to incorporate the network resources of interconnected firms. Alwis (2004) adapted and extended Glynn (1996)'s model for intelligence and innovation⁸ and built upon four major theoretical streams (i.e. a resource-based view of the firm, innovation theory, intellectual capital theory and organisational capabilities). Hagel and Brown (2005) argued that both the resource-based view of the firm and the strategic networks approaches are incomplete approaches although they provide distinctive opinions for value creation.

On one hand, the resource-based view of the firm emphasises the need for companies to develop a tight focus on areas of specialisation and to be aggressive in seeking to deepen these over time. On the other hand, the strategic networks approach emphasises the importance of inter-companies environment for value creation. Therefore, companies may lose opportunities from paying more attention to one side than the other. Consequently, Hagel and Brown (2005) stressed the need for integrating and extending both of these approaches, with firms amplifying the value of its distinctive internal capabilities by creatively and aggressively harnessing complementary capabilities from other companies.

To fill such a gap, Hagel and Brown proposed a more dynamic view of value creation, accelerating capability building. The approach integrates and extends the thought of both the resource-based view of the firm and the strategic networks into a united approach. The main premise of the approach is that a lot of the potential for capability building occurs when companies with very different specialisations

⁸ Glynn (1996) developed a framework as an initial step toward the build up of a theory that explains the cognitive foundations of organisational innovation. The central idea of the framework, "intelligence and organisational innovation", is that intelligence is embedded in organisations and operates both through individual agents and institutionalised systems to affect organisational innovation. Organisational innovation is based on individual and organisational intelligences that are moderated by contextual factors. Thus, the question of how to make firms more innovative involves the question of how to make firms more intelligent.

seek to collaborate around common business objectives. Accordingly, distinct capabilities remain the basis of strategy, but must rapidly evolve among collaborators to remain a source of value. “So, rather than concentrating on dividing the economic pie, participants (whether employees within a single company or firms uniting around common business initiatives) can start focusing on opportunities to enlarge the pie overall,” (Hagel & Brown 2005: 19).

2.5.3 Emerging perspectives on value creation

According to Amit and Zott (2001), each theory discussed earlier makes valuable suggestions about possible sources of value creation. However, each theory has limitations when applied in the context of e-businesses. This section continues the literature review of approaches of relevance for understanding value creation by looking briefly at a number of emerging value creation frameworks in e-business.

According to Frambach et al. (1998), two types of diffusion models are distinguished. The first group of models aim to gain understanding of diffusion processes as a whole. These models are analytical representations of a diffusion process at the aggregate level. They are often referred to as diffusion models. The second group of models has the objective to gain insight in the determinants of the individual adoption decision. These models take a disaggregate perspective and are generally referred to as adoption models. Here I look at a various adoption models for e-business, generally, and e-banking, in particular.

2.5.3.1 Value-creation in e-business

McFarlan and McKenney (1983) suggested the “strategic grid” that aims to give insight to the role IT plays in organisations. The “strategic grid” distinguishes IT systems within organisations into two types: existing IT systems and under development IT systems. Moreover, it classifies the relative degrees of impact and importance of such systems on operations into two degrees: high and low. Accordingly, the “strategic grid” differentiates organisations into four categories strategic, turnaround, factory, and support (see Figure 2.5.I).

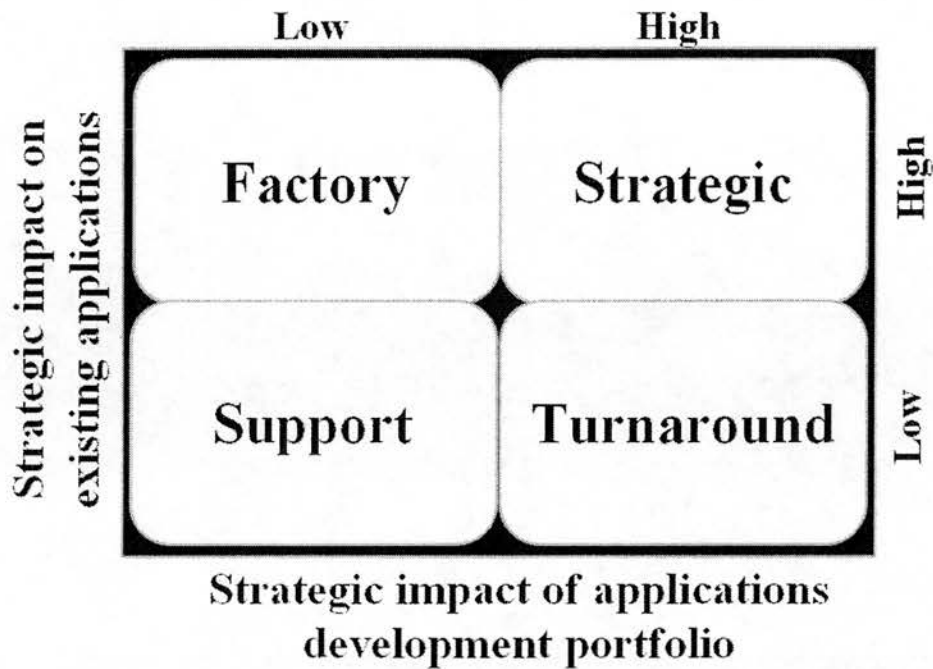


Figure 2.5.I Strategic grid (McFarlan and McKenney 1983, modified)

In the role of IT within organisations, the first quadrant, “strategic”, is essential for executing current strategies and operations, and the new IT applications in development are crucial for future competitive success. The second quadrant is “turnaround”. Some organisations receive considerable IT support for operations, but are not absolutely dependent on the totally uninterrupted, fast-response time and cost-effective functioning of IT to achieve operating objectives. Their new IT operations, however, are absolutely necessary to enable the organisation to achieve its strategic objectives.

Organisations that exist within the third quadrant, “factory”, are heavily dependant on cost-effective, totally reliable IT operational support to enable internal operations to run smoothly. Firms in the factory quadrant are using IT to enable critical, time-dependant operations to function smoothly; but the IT applications under development, although profitable and important in their own right, are not fundamental to the organisation’s ability to compete. For the organisations in this category, even a one-hour disruption in service or deterioration in response times has severe operational, competitive, and financial consequences. For organisations that exist within the fourth quadrant, “support”, the strategic impact of IT on operations and future strategy is low, and the strategic impact of IT applications in development, viewed realistically, is quite limited (Applegate et al. 1998).

Nolowidigdo (1984) distinguished strategic information systems into internal systems and external systems. Internal systems have direct benefit to the organisation and external systems that have direct benefits to the organisation’s customers, but which indirectly benefit the organisation. Accordingly, Nolowidigdo (1984) proposed a model, entitled “Information systems as a weapon to gain a competitive edge,” (see Figure 2.5.II)

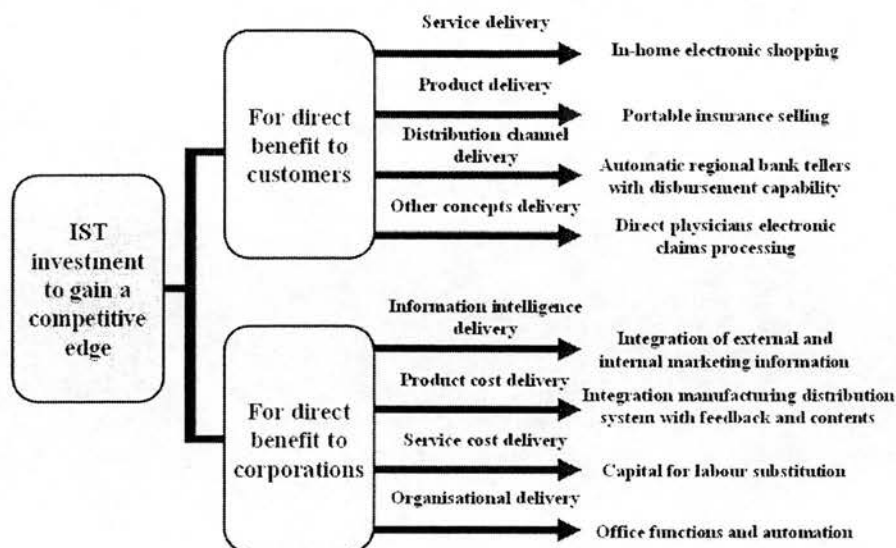


Figure 2.5.II Information systems as a weapon to gain a competitive edge (Nolowidigdo 1984, modified)

Although Nolowidigdo (1984) specified “information intelligence delivery” as offering a competitive advantage to corporations, Ives and Learmonth (1984) illustrated that there are many instances where “Information Intelligence” provided directly to the customer can also result in a significant competitive advantage. Accordingly, Ives and Learmonth proposed a model entitled “customer resource life cycle - (CRLC),” that can be used to identify new applications or to map existing applications into settings.

In the context of Porter’s generic strategies (1980), the CRLC focuses on the relationship between the provider of goods or services and the customer. It is here that the primary competitive strategy evolves: Will management elect to differentiate the firm from its competitors in the eyes of the customer, try to become the low-cost producer or seek a special niche in the market? The “mechanisms” shown in Nolowidigdo (1984)’s model (e.g., service delivery, product delivery) provide a useful starting point for identifying specific strategic applications, but are still too general to be of direct applicability (see Figure 2.5.III).

IBM stage	Extended model	Description
Requirements	Establish requirements	To determine how much of resource is require
	Specify	To determine a resource's attributes
Acquisition	Select source	To determine where customers will buy a resource
	Order	To order a quantity of a resource from the supplier
	Authorise and pay for	To transfer funds or extend credit
	Acquire	To take possession of a resource
	Test & accept	To ensure that a resource meets specifications
Stewardship	Integrate	To add an existing inventory
	Monitor	To control access and use of a resource
	Upgrade	To upgrade a resource if conditions change
	Maintain	To repair a resource, if necessary
Retirement	Transfer/dispose	To move, return, or dispose of inventory as necessary
	Account for	To monitor where and how much is spent on a resource

Figure 2.5.III Four- and thirteen-stage customer resource life cycle (CRLC) (Ives & Learmonth 1984: 1198, modified)

According to Ives and Learmonth (1984: 1194), the “strategic grid” is used to prescribe an appropriate type of management control system. For example, McFarlan and McKenney (1983) argued that it makes more sense to change for computer resources in the “factory” quadrant than it does in the “turnaround” quadrant. The “strategic grid” is also useful for evaluating a portfolio of alternative information system investments although it offers little assistance to the firm that wants to identify new competitive applications of information systems.

Willcocks and Plant (2001) proposed a model, entitled “business-to-consumer e-strategic grid”, for the evolution of the Internet within bricks-and-mortar companies. The framework has two dimensions, marketing focus, and information focus, dividing the framework into four crucial strategic quadrants: technology, brand, service, and market. In practice, laggard companies never made it past the technology quadrant. Because they had no business model governing their use of Web technology, they became mired in debates about whether Web technology was a silver bullet or a passing fad. Thus, profits and market share remained elusive. Leading and medium-performing organisations, on the other hand, quickly moved beyond their starting points. They migrated towards a market strategy by concentrating either on a brand strategy or service strategy. Few migrated directly to a market strategy. Interestingly, there emerged both more progressive and less progressive ways of operating within each quadrant (see Figure 2.5.IV).

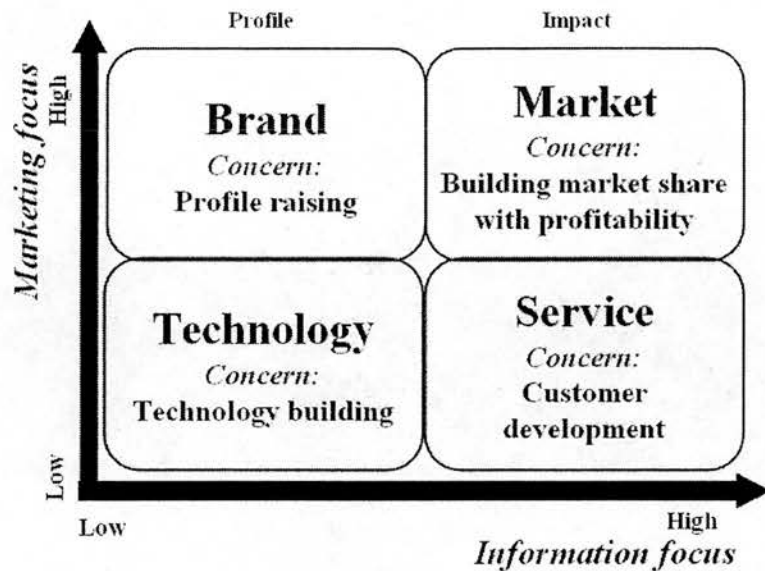


Figure 2.5.IV Business-to-Consumer E-Strategic Grid (Willcocks & Plant 2001: 54, modified)

McLaughlin et al. (1983) hypothesised that organisations vary in the extent to which information systems can add value through technology and also in the capabilities of their information systems departments. This relationship is depicted in what is named “quality of information systems resources vs. value-adding potential of business.” An organisation with high value-adding potential but weak systems resources is vulnerable to competitors with better IS technology (IST) resources. On the other hand, if value-adding potential is high and the systems group is strong, the organisation may be in a position to compensate for the technological weaknesses (see Figure 2.5.V).

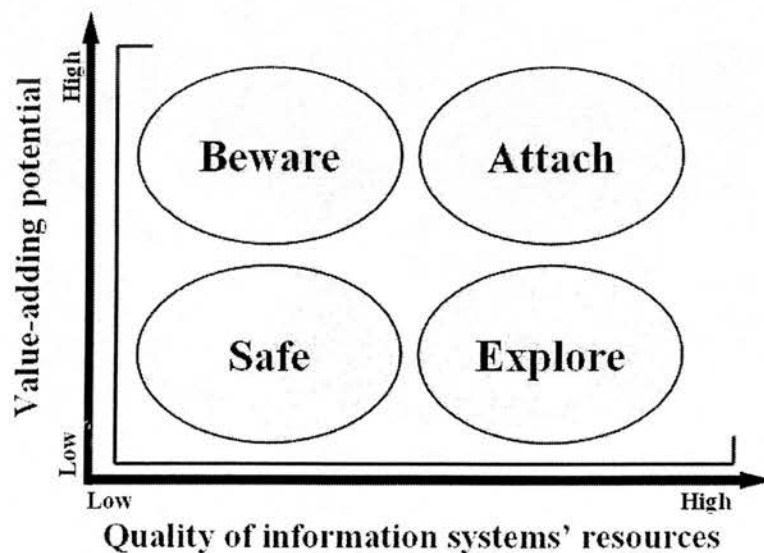


Figure 2.5.V Quality of information systems resources vs. value-adding potential of business (McLaughlin et al. 1983, modified)

Grounded on a discussion of the strategic opportunities presented by IS technology (IST) with top executives and technology managers in two dozen companies, Benjamin et al. (1984) proposed a

model, entitled “strategic opportunities matrix.” The model is based on two questions: (1) Can IST be used to make a significant change in the way a company does business so as to gain a competitive advantage? And (2), should a company concentrate on using IST to improve its approach to the marketplace, or should it centre its efforts on internal improvements? According to Ives and Learmonth (1984), the internal versus external dimension assumes that the uses of an information system need not be directly related to customers being strategic. In the structural change dimension, the adoption of some IST requires significant modifications to current business practices (see Figure 2.5.VI).

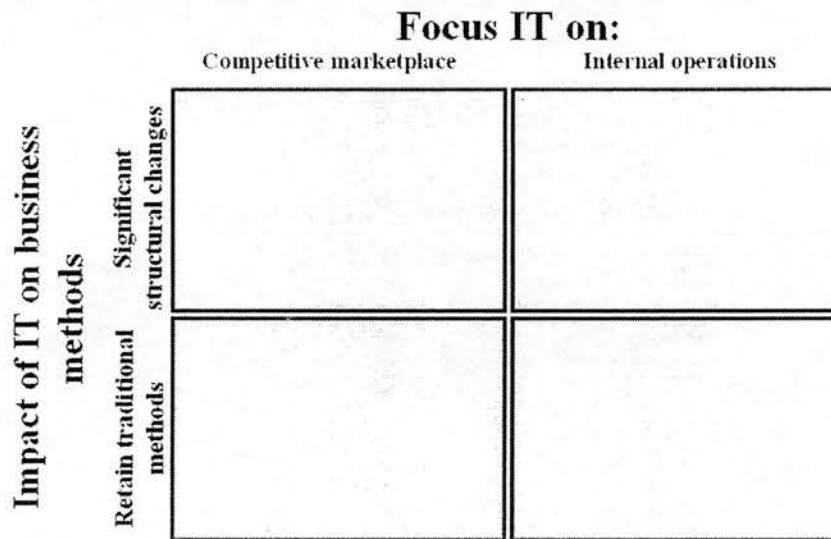


Figure 2.5.VI Strategic opportunities matrix (Benjamin et al. 1984, modified)

Barua et al. (2001) provided an operational model of e-business value creation that is backed by substantial research. The model’s premise is that the achievement of e-business’ operational excellence will lead to improved financial performance. The central task of senior management then lies in understanding what drives operational excellence in the e-business realm. Therefore, Barua et al. provided eight drivers encompassed into three areas: e-business processes for customers and suppliers, IT applications for customers, suppliers, and internal operations, and the e-business readiness of customers and suppliers.

Such drivers would help managers carry out the task of understanding what drives operational excellence in the e-business realm. Barua et al. suggested that by incorporating these tools into day-to-day activities, companies can reap the Internet opportunities. In addition, Barua et al. discussed the central components of e-business’ operational excellence: online revenue, online procurement, new customers, existing customers, and customer service (see Figure 2.5.VII).

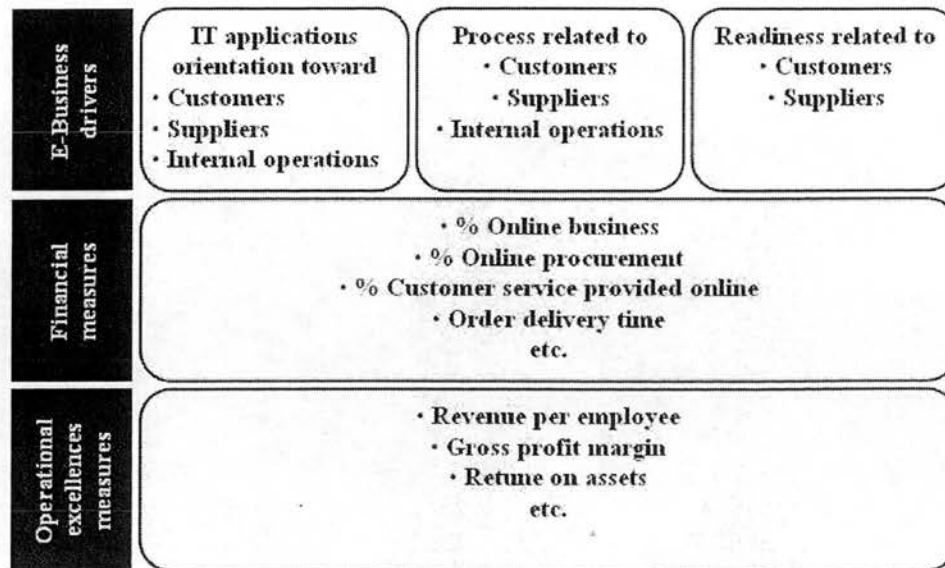


Figure 2.5.VII e-Business value model (Barua et al. 2001: 42, modified)

Tjan (2001) argued that much of the market and industry data that underpin traditional portfolio analysis are unavailable for the Internet space. Thus, Tjan (2001) suggested that the analysis of Internet initiatives must rely on more qualitative information. Therefore, rather than using market position and industry attractiveness as main factors for such analysis, Tjan suggested replacing such measures with business viability and business fit. Accordingly, Tjan (2001) proposed a simple matrix, entitled “Internet portfolio map (IPM),” to evaluate individual Internet initiatives, and create a balance portfolio that raises the probability of achieving an attractive return on overall investment.

The IPM was grounded on traditional thinking about portfolio strategy. Its vertical axis indicates the level of viability, while its horizontal axis indicates fit. By dividing the matrix into four quadrants, a company gains a rough guide to the best strategic course for each initiative: invest more in it, redesign it, sell it or spin it out, or kill it. For example, an initiative that rates high on viability but low on fit is an obvious candidate to spin out, while one that rates high on fit but low on viability may warrant a redesigning to try to improve its economic prospects (see Figure 2.5.VIII).

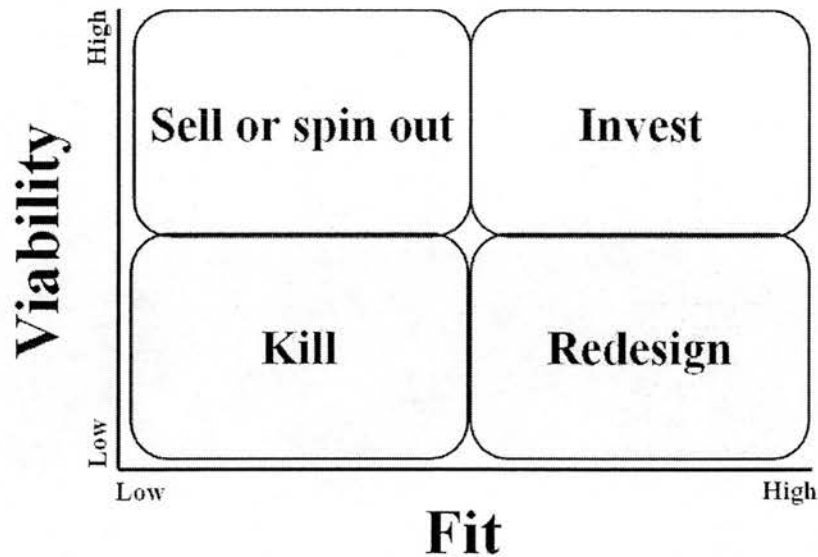


Figure 2.5.VIII Internet portfolio map (IPM) (Tjan 2001: 80, modified)

Amit and Zott (2001) looked at the theoretical foundations of value creation in e-business. Amit and Zott observed that in e-business new value can be created by the ways in which transactions are enabled. They argued that a firm's business model is an important locus of innovation and a crucial source of value creation for the firm and its suppliers, partners, and customers. Amit and Zott (2001) developed a model of the sources of value creation. The model was grounded on the received theory in entrepreneurship and strategic management as well as an examination of value creation strategies of 59 American and European e-businesses.

The model suggests that the value creation potential of e-businesses hinges on four interdependent dimensions, namely: efficiency, complementarities, lock-in, and novelty. As said earlier, Amit and Zott (2001) also argued that no single entrepreneurship or strategic management theory can fully explain the value creation potential of e-business. Rather, an integration of the received theoretical perspectives on value creation is needed (see Figure 2.5.IX).

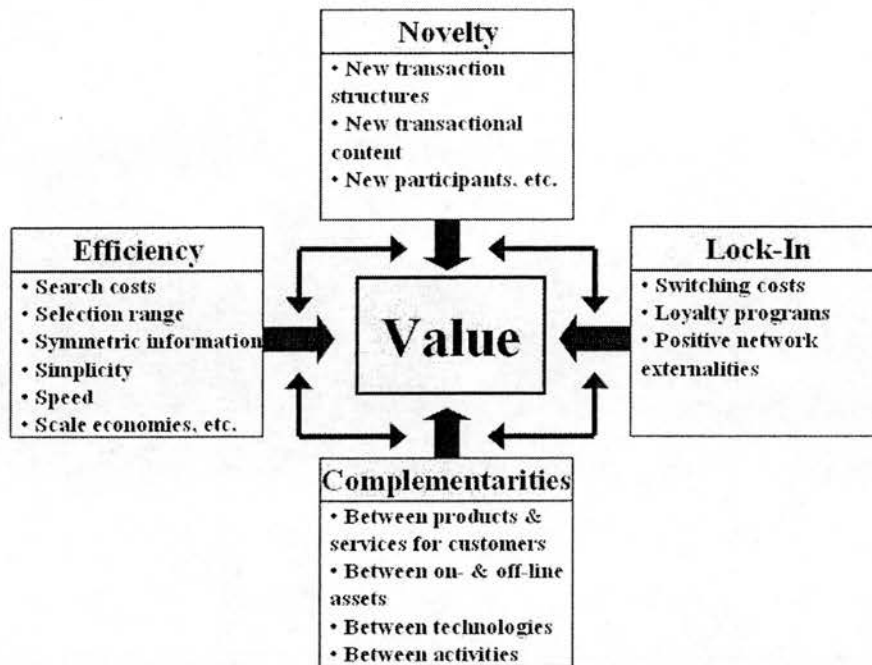


Figure 2.5.IX Sources of value creation in e-business (Amit and Zott 2001: 504, modified)

Focusing on business-to-consumer markets, Barnes (2002) examined how value is added in the stream of activities involved in providing mobile-commerce to the consumer. As such, it analyses the key players and technologies that form part of the mobile-commerce value chain, providing a foundation for future strategic analysis of the industry. The result is a detailed value chain analysis; entitled “a framework for mobile-commerce” that provides a foundation for understanding the concept of mobile-commerce. The basic model of the framework consists of six core processes in two main areas: (a) content (i.e. content creation, content packaging, and market making) and (b) infrastructure and services (mobile transport, mobile services, delivery support, and mobile interface and applications) (see Figure 2.5.X).

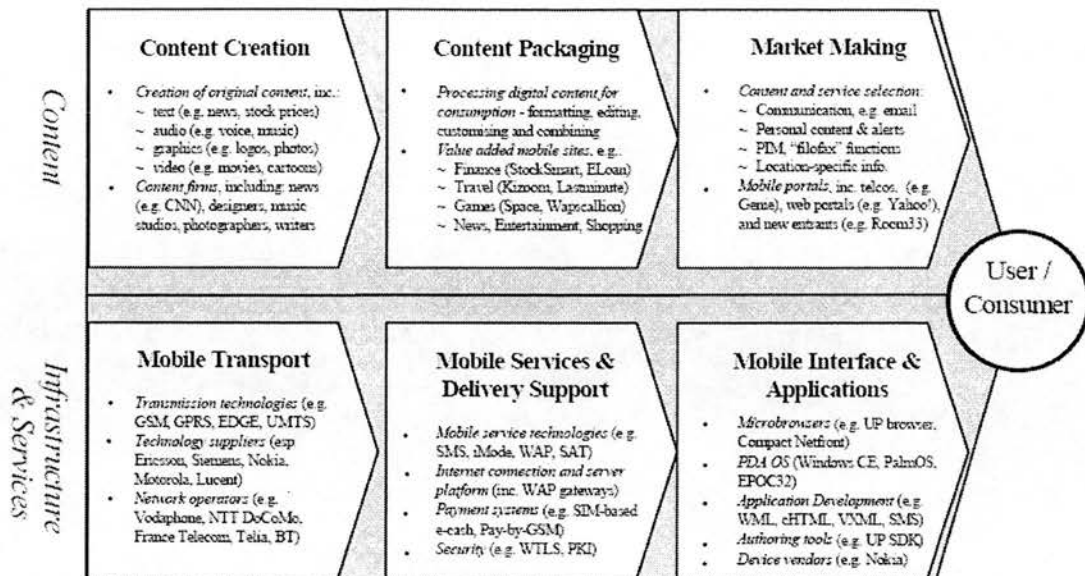


Figure 2.5.X The mobile-commerce value chain (Barnes 2002: 93, modified)

2.5.3.2 Value-creation in e-banking

The question on whether value creation in e-business can be employed with e-banking is a challenge. Many emerging value creation perspectives exist in the literature with different perspectives of value creation in e-banking. According to Ives and Learmonth (1984), recent changes in the banking industry illustrate the use of the McFarlan and McKenney (1983)'s Strategic Grid. Prior to deregulation, banks typically fell into the Factory Quadrant with respect to their usage of information systems technology (IST): Information system support was critical for day-to-day transaction processing, but applications under development were not likely to help a company to achieve a significant competitive advantage. After deregulation, successful banks progressed through the turnaround Quadrant to the Strategic Quadrant, acting aggressively to get new information-based products to market. This marked a clear shift of IST from a back-office support role to an important instrument of competitive strategy.

Looking at the interface between IT and sustainable competitive advantage from a marketing perspective in the retail banking industries, Colgate (1998) proposed a model that highlights the desirable components and linkages of a sophisticated marketing information system for retail banks. Colgate's model, entitled "marketing information system (MkIS) and its sources," was based on three main sources.

The first source is the knowledge and experience gained in visiting banks with sophisticated marketing information systems. The second source is the documented analysis obtained from case studies, in particular what banks hoped their MkIS will look like in the future. The third source is the academic literature which presents a myriad of models on what an MkIS is, in particular, the work of Lucey (1987), Mitchell and Sparks (1988), Sisodia (1992) and Talvinen (1995). Colgate suggested

that the model enables the understanding of the IT components (MIST) found within a sophisticated MkIS. Colgate also suggested that the model is not a prescription to managers, but an insight into what a sophisticated MkIS within a bank may look like (see Figure 2.5.XI).

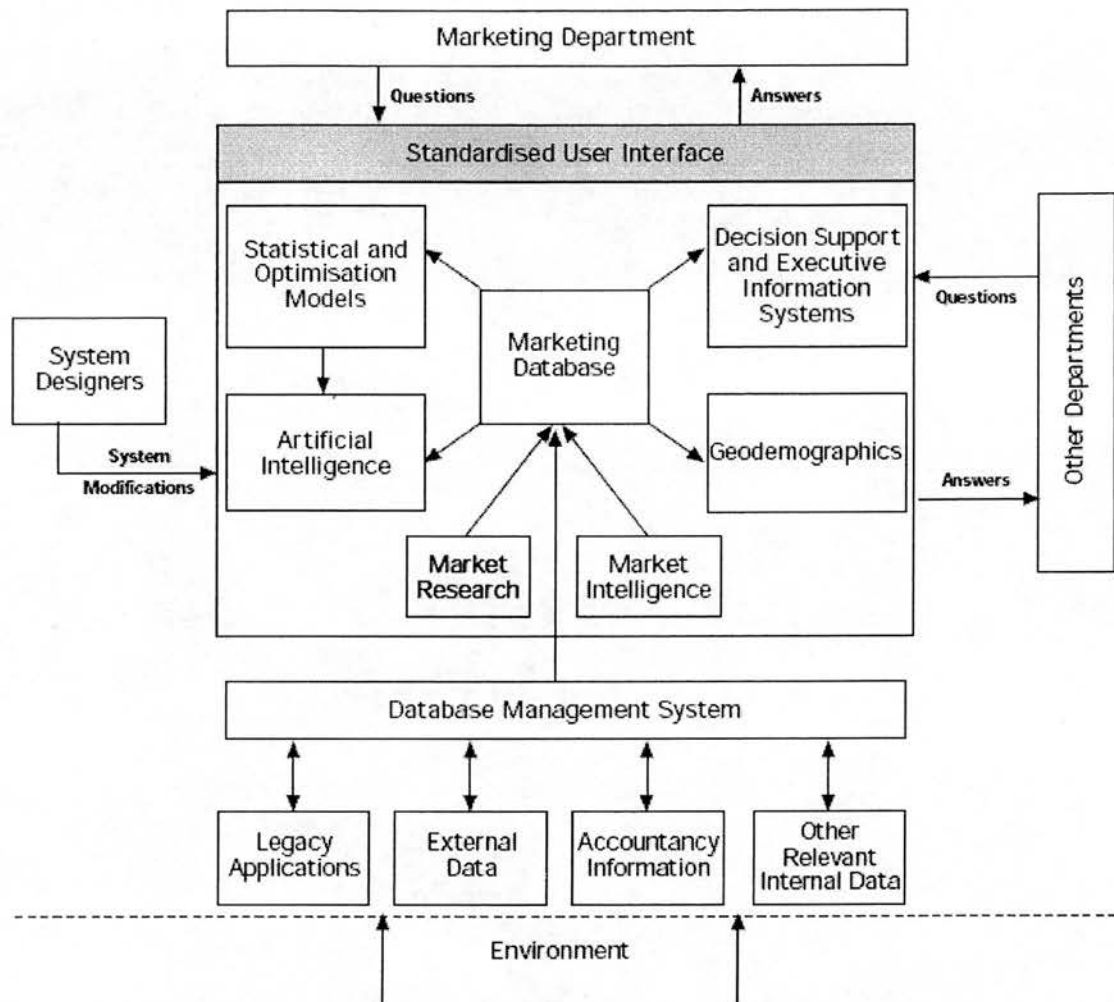


Figure 2.5.XI Marketing information system (MkIS) (Colgate 1998: 82)

Mols (1999) proposed the “distribution channel strategies grid” and accordingly identified four pure distribution channel strategies and a dual strategy for financial services industry and illustrated the advantages and disadvantages of each strategy. The discussion on those five strategies with its advantages and disadvantages as follow (see Figure 2.5.XII):

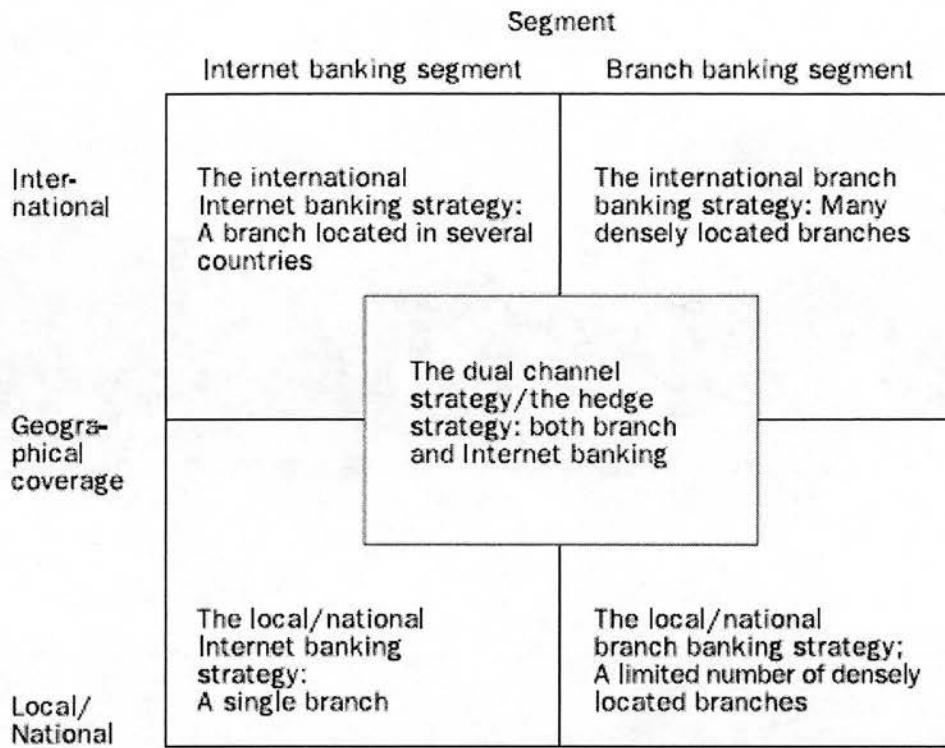


Figure 2.5.XII The Internet and the banks' strategic distribution channel decisions (Mole 1999: 298)

The local/national branch banking strategy is a relatively dense branch network in a limited geographical area in one nation characterises it. The problem connected with this strategy is that it leads to a decreasing number of customers and the closing of branches. In a short and intermediate range, it can be a profitable strategy if the banks are able to keep costs low, but it will be unpopular among many bank managers because it is a non-growth strategy.

The international branch banking strategy is characterised by a relatively dense branch network in a large geographical area, covering two or more nations. The driving force behind the expansion has often been the wish to serve the largest corporate customers with effective cash management offerings. The problem with this strategy is that it is resource-intensive and, for most banks, it leads to a declining number of customers. The most likely solution for the banks therefore, is to pursue a dual strategy offering both branch and Internet banking services.

The local/national Internet banking strategy only requires one single branch as all normal routine transactions are handled through the Internet. It has the advantage that it aims at serving the fastest growing customer segment. Thereby it becomes a means to gain a larger market share. In addition, it is a low cost strategy because the Internet is a much cheaper distribution channel than the traditional branch network. The disadvantage is that it is difficult for Internet banks to differentiate their offerings, thus, the market is more transparent and the competition is fiercer.

In the international Internet banking strategy no further branches are needed compared to the local/national Internet banking strategy and it aims to capture as many Internet banking customers as possible in several countries. There will be a number of competitors for such banks, so the competition will be fierce and it can be difficult to earn an acceptable profit. Another problem might be to convince new customers that they can trust the bank, despite the fact that it is not very well known in a number of countries and has no significant physical presence.

The dual channel strategy or the hedge strategy is a combination of a branch network and Internet banking. However, it is likely to lead to conflicts between Internet banking departments and branch banking departments, and it can be difficult to motivate the front personal to promote the Internet banking services, when they know that it will lead to their unemployment.

Hensmans et al. (2001) suggested a simple conceptual framework describing how new entrants and incumbents in the financial services industry influence each other and can evolve reciprocally to create the future online financial services industry. The framework, entitled “generic click legitimacy building and brick legitimacy leveraging strategies”, divides new entrants into three types (see Figure 2.5.XIII).

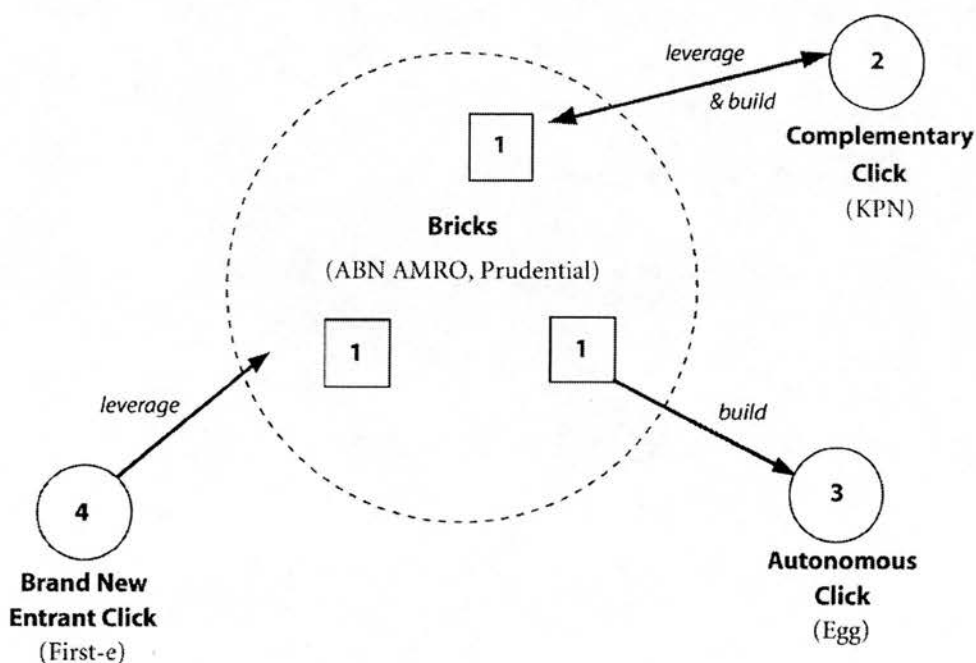


Figure 2.5.XIII e-Strategies of 'bricks' & 'clicks' (Hensmans et al. 2001: 234)

Organisations in the first type, the complementary clicks, are existing players in industries external to financial services who form partnerships, alliances, or joint ventures with incumbents. An example of this type of entrant is the software companies Microsoft and Intuit, which co-operated with incumbents like Royal Bank of Scotland to build standardised customer interfaces. Autonomous clicks

are the autonomous external ventures of incumbents, such as Egg, the UK-based Internet banking division of Prudential Banking.

Brand new entrant clicks are often the result of entrepreneurial efforts originating from outside the traditional financial services industry. For example, Dublin-based First-e, backed by a consortium of venture capitalists and technology firms. First-e aims to be the first Internet bank to balance the global nature of Internet technology and the demands of customers for local presence on a European scale, and has taken the step of allying itself with Spanish Uno-e, creating the Unofirst Group.

Southard and Siau (2004) proposed three paths for banks' future in a diagram named, e-banking continuum. The continuum shows three possible paths for the future of e-banking. First, a company can continue or attempt to grow itself into a mega-bank, like Citicorp or J.P. Morgan, marketing itself to the financially sophisticated or low-cost-oriented customer. Second, it can use portals and bundling to fill a market niche for customers who desire a home town atmosphere and services. The path of the third group appears to lead either to outright purchase by a bank in one of the first two groups or to oblivion as their customer base is gradually eroded.

Banks will need to focus their Internet technology strategy along this continuum. Movement along the continuum is only towards the upper left. This restricted movement foretells the future of e-banking. Banks will either maintain their positions or they will be forced, through acquisition or merger, towards the upper-left segment of the continuum. The largest banks will continue to innovate in bundling their services, finding new ways to offer those services, including the use of new technologies. Wireless communication and mobile banking will continue to increase, making e-banking even more ubiquitous (see Figure 2.5.XIV).

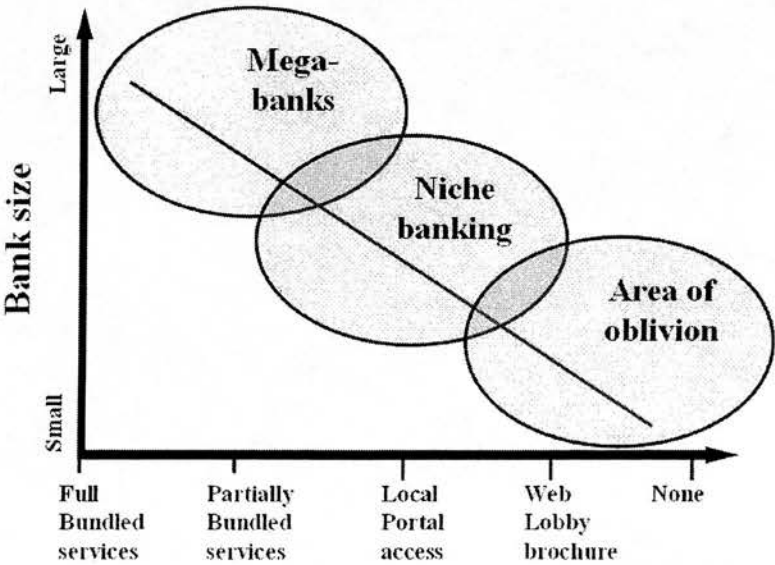


Figure 2.5.XIV e-Banking continuum (Southard & Siau 2004: 101)

Stamoulis et al. (2002) undertook a study in a bank faced with the challenge of assessing the value of its main e-banking channel in operation. The study argues that the evaluation of an information system should be seen as a form of communication. Therefore, the study proposes an information system's evaluation model to assess the business value of e-banking distribution channels. The model employs five different perspectives: customer perspective, marketing and sales perspective, financial perspective, technology perspective, and strategic perspective. Each perspective has its own set of metrics. These perspectives can be used to assess the business value along two viewpoints: (a) the internal view, where the channel is considered as a resource whose utilisation must be maximised; and (b) the external view, where the channel, as an interface to the bank's customer base, should enable and support customer relationship management (see Figure 2.5.XV).

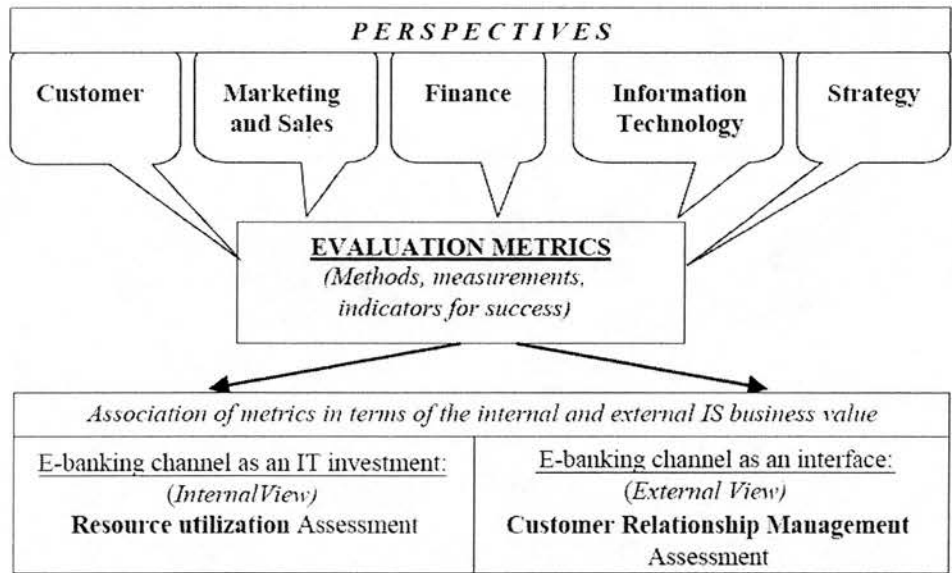


Figure 2.5.XV An evaluation model for e-banking channels (Stamoulis et al., 2002: 255)

Kollmann (1998) pointed out that the central task of an e-market is the coordination of supply and demand. Kollmann suggested that the success of the coordinating function depends on two critical points of success: the critical cost factor in which the transaction costs equal the costs of coordination, and the critical performance point at which the costs of coordination equal the coordinating performance. Accordingly, Kollmann provided a model, "the two-dimensional critical point of EM," for evaluating the performance of the coordination function. Moreover, Kollmann discussed some problem aspects associated with the coordination function: chicken-and-egg, two-sided critical mass, satisfaction of coordination needs, and quality of business deals problem (see Figure 2.5.XVI).

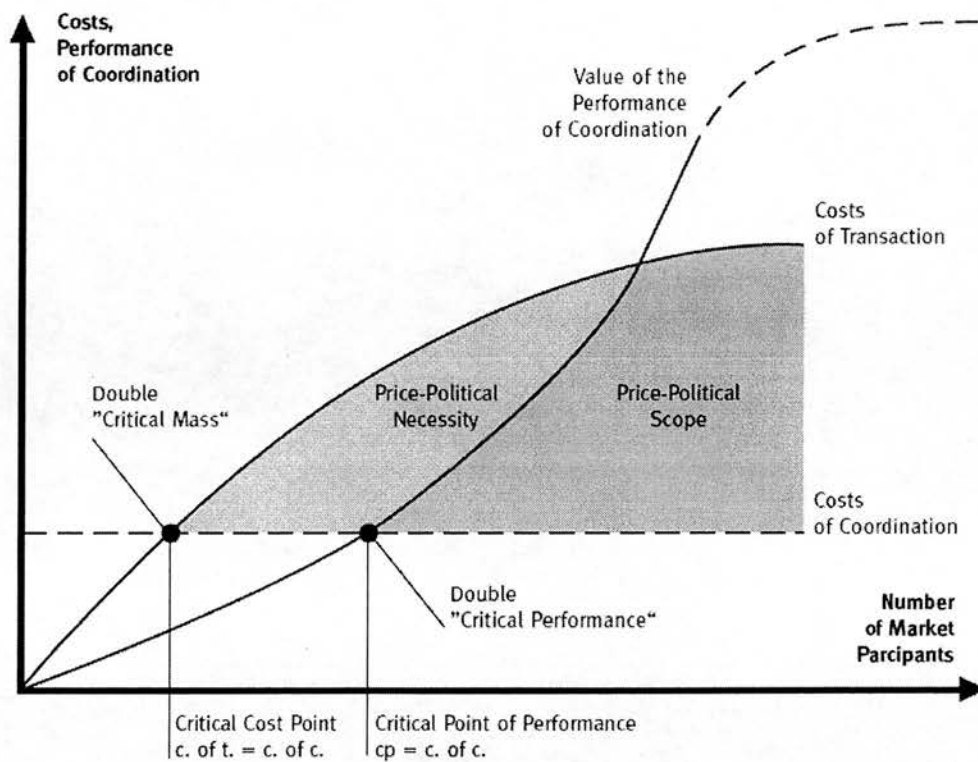


Figure 2.5.XVI The two-dimensional critical point of EM (Kollmann 1998: 38)

2.5.4 Conclusion

This section looked briefly at the value creation potential in conventional theories, a group of emerging theoretical value creation frameworks in e-business, as well as the applicability of these theories in the context of e-banking. Each conventional theory and e-perspective discussed earlier makes valuable contributions about the possible sources and processes of value creation.

Many scalars in the field of strategy formulation stress the need for an integrative framework that captures the value creation and capabilities building potential of e-businesses. For instance, Amit and Zott (2001: 516), having looked at five theoretical approaches (see Table 2.5.I), wrote:

“We observed that none of the received theories in and of itself could explain the sources of new value creation in e-business. Rather, the value-drivers model suggests that an integrative perspective to value creation is needed, a perspective that draws on the extensive research on value chains, Schumpeterian innovation, the resource-based view of the firm, interfirm strategic networks, and transaction cost economics. We suggest that research on e-business and, more generally, on competition in highly networked markets, will benefit from an integrative approach that combines both strategy and entrepreneurship perspectives”.

Each dimension of Amit and Zott (2001)’s value-drivers model (i.e. efficiency, complementarities, lock-in, and novelty) commands equal attention from the five theoretical approaches, as described by Table 2.5.I.

	Efficiency	Compleme ntarities	Lock-in	Novelty
Schumpeterian innovation	Low	Low	Low	High
Resource-based view of the firm	Low	High	Medium	Medium
Transaction costs economics	High	Low	Medium	Low
Value chain analysis	Medium	Medium	Low	Medium
Strategic networks	Medium	Medium	High	Medium

Table 2.5.I Theoretical anchoring of sources of value creation in e-business (Amit & Zott 2001: 511)

Moreover, the work of Gulati (1999), Afuah (2000) and Hagel and Brown (2005) integrated the resource-based view of the firm with the strategic networks approach. Lavie (2006) extended the resource-based view of the firm to incorporate the network resources of interconnected firms. Jones et al. (1997) integrated the transaction cost economics with the strategic networks approach. Also, Alwis (2004) adapted and extended Glynn (1996)'s model for intelligence and innovation and built upon four major theoretical streams (i.e. a resource-based view of the firm, innovation theory, intellectual capital theory, and organisational capabilities).

In a similar vein, Martinez-Hernandez (2003) proposed a new framework, "the value cube", to describe how organisations should align and manage their operations, resources, capabilities, and competencies with their value propositions to create value. Werner (2003) integrated a number of guiding principles for entrepreneurship and value creation within the context of fast-changing operating contexts to develop a dynamic model for value creation.

Next I look at the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses.

2.6 Technology implementation

2.6.1 Introduction

The aim of this section is to look at the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. Such literature should help provide an intellectual background for the discussion on structured processual approaches useful to analyse in detail and comparatively the emergence and evolution of e-banking in Saudi Arabia. The present section starts with clarifying the term "implementation" and looks briefly at implementation through the lens of innovation and diffusion. Then, the section discusses the dynamics of the implementation process, as well as its different stages/phases. Next, the section looks at the implementation challenges, success and failure, implementers' responsibilities and broad implementation approaches. The section ends by introducing a group of empirical studies related to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s.

2.6.2 Definition of implementation

According to the Oxford English Dictionary, the term "to implement" means "to complete, perform, carry into effect, to fulfil, to carry out, execute, to fulfil, satisfy, to complete, fill up, supplement, to provide or fit with implements".

In the context of technology, the process of implementation has become recognised as a key aspect in the overall development of technology (Leonard-Barton & Kraus 1985; Voss 1988, Rhodes & Wield

1985; Fincham et al. 1994). Technology implementation means “getting [technologies] up and running in daily operations,” (Leonard-Barton 1988: 251). This definition looks at implementation from two interrelated angles: implementation as a decision-making activity and implementation as a process of technological-organizational adaptation.

A great deal of technology implementation literature looks at implementation as a decision-making process that converts a design idea into an operating reality so as to provide value to the client (Hetzner et al. 1986; Swanson 1988; Dean et al. 1990; Goodman & Griffith 1991; Fincham et al. 1994; Tyre & Orlikowski 1994; Klein & Sorra 1996). This definition highlights that implementation involves choice situations and decisions, may be distinguished from design, seeks to produce an operating reality that provides value to the client, and whose responsibility often falls upon a particular person or group within an organisation (Swanson 1988: 2). Dean et al. (1990: 130) stresses the decision-action dialectics in his view that implementation “consists of a series of decisions and actions, in which each decision necessitates actions which involve still more decisions”. In turn, Goodman and Griffith (1991: 262-263) draw attention to the importance of institutionalisation along with the adoption decision.

“Implementation [is] bounded by the adoption decision and institutionalisation. The adoption decision refers to the processes by which a new piece of technology is selected for the organisation.... Institutionalisation refers to the process by which a structure persists over time... Technology refers to a system of components which act on or change an object from one state to another. The components include hardware, software, and programs to transform materials or information from one state to another.”

In addition, the group of related decisions in implementation is characterised by time (Hetzner et al. 1986; Fincham et al. 1994) and organisational level (Hetzner et al. 1986) as implementation not only represents a “transition period during which targeted organisational members ideally become increasingly skilful, consistent and committed in their use of an innovation,” (Klein & Sorra 1996: 1057) but, also, is “concerned with the influence of managerial action on the end-user’s adoption decision,” (Yetton et al. 1999: 55).

Indeed, Tyre and Orlikowski (1994: 113-114) suggested that “the decisions and directions taking during a short period following initial installation are major determinants of how the technology will be used by the organisation over the longer term.” Fincham et al. (1994: 190) pointed out that implementation is “the prime locus in which decisions regarding technology take shape.” Klein and Sorra (1996: 1057) suggested that implementation is “the critical gateway between the decision to adopt the innovation and the routine use of the innovation within an organisation.” In other words, it is the process in between the decision to adopt and the routine use of a technology in an organisation.

Implementation as a process of technological-organisational adaptation is a major theme in the technology implementation literature (e.g., Leonard-Barton 1988; Goodman & Griffith 1991; Fleck

1994; Fincham et al. 1994; Griffith 1996; Klein & Sorra 1996; Yetton et al. 1999; Fleck & Howells 2001). Implementation is “the process through which technical, organisational and financial resources are configured together to provide an efficiently operating system,” (Fleck 1994: 640; Fincham et al. 1994: 190). It is “the process through which technology is concretely deployed” (Fincham et al. 1994: 190), with the aim of “getting technologies, especially complex ones, to work as commercially successful operating systems,” (Fleck 1994: 637). Also, “implementation is a dynamic process of mutual adaptation between the technology and its environment” (Leonard-Barton 1988: 252), while Williams (1997) proposed that implementation problems for packaged solutions thus often reflect lack of fit between the social relations in the firms in which a system was initially developed, which become embedded in the software, and the actual circumstances of the user. Finally, Fleck and Howells (2001: 528) suggested that “the problems of implementation occur after new artefact installation, when, typically, productivity falls throughout the shop floor”.

2.6.3 Implementation, innovation and diffusion

Whatsoever the definition adopted, implementation is usually linked to innovation and diffusion. Thus, implementation is innovation being put into use (Van de Ven 1986; Rogers 1987; Nord & Tucker 1987; Leonard-Barton 1988; Voss 1988; Fincham et al. 1994; Fleck 1994; Yetton et al. 1999; Linton 2002), where innovation is “a technology being used for the first time by members of an organisation, whether or not other organisations have used it previously,” (Nord & Tucker 1987: 6). For Voss (1985: 267), implementation is “the process of adoption of process innovations”, which “includes both pre-installation and post-installation factors,” (Voss 1988: 59).

This involves “all activities that occur between making an adoption commitment and the time that an innovation either becomes part of the organisational routine, ceases to be new, or is abandoned,” (Linton 2002: 66). Leonard-Barton (1988: 252) argued that the “initial implementation of a new technology is an extension of the invention process,” whereas Fleck (1994: 650) argued that “innovation during the process of implementation is to be expected in the development of working configurations of [Computer Aided Production Management] CAPM, as an outcome of “learning by trying”.

The deep relation between implementation and innovation is also underscored by other authors. For instance, implementation is “one of the last steps in user-based and dual-process models of the innovation process” (Linton 2002: 65), as not only it “identifies and explains the impacts of the innovation on the end-user’s task at the group level of analysis,” (Yetton et al. 1999: 55) but, also, it is considered as “a crucial process as far as strategic innovations are concerned,” (Fincham et al. 1994: 190). Thus, argues Linton (2002: 65) “to understand implementation, one must place it in the context of the entire innovation process”.

Implementation is also usually linked to technology diffusion (e.g., Adler & Borys 1989; Cooper & Zmud 1990; Goodman & Griffith 1991; Yetton et al. 1999). Diffusion refers to the effort by which technology is extended to other parts of the organisation (Cooper & Zmud 1990; Goodman & Griffith 1991; Yetton et al. 1999). This effort covers “the organisational and managerial resources expended on activities designed to promote novel behaviours among end-users and to diminish the forces opposing successful implementation,” (Yetton et al. 1999: 55). Goodman and Griffith (1991: 272) suggested that “the effect or consequence of diffusion in implementation is to facilitate the development of normative and value consensus throughout the organisation with respect to the new technology.”

As new technology spreads throughout the organisation, a social environment is created for the emergence of normative and value consensus. The widespread introduction of a new technology within an organisation not only signals the legitimacy of the technology, but also leads to the development of an infrastructure to support the technology, which further legitimises its existence (Goodman & Griffith 1991). In Adler and Borys’s (1989: 177) words:

“Aggregate diffusion of new technologies is influenced by firm implementation and vice-versa. But the goals and capabilities of a management mediate the diffusion-implementation relationship at all points. First ... management actively mediates relations between the firm’s equipment base and vendors, between its materials and suppliers and between its labour force and the broader labour market. Second, the factors of production and the product characteristics are a function of the resources management brings into the production process, management’s ability to orchestrate this process, and management’s expectations regarding the profitability of its operations. Third, [there is] a direct linkage between management and some specific environments, such as the regulatory environment and the broader context of societal values.”

Finally, Fleck’s (1994) concept of user innovation during implementation has important consequences for the traditional concept of diffusion as a sequence to the process of innovation. Thus:

User innovations “refer to the important incremental improvements that flow from progress up the learning curve (learning by doing) and from progressive modifications to an already functioning technological entity (learning by using). As such, they represent improvements made after a functioning entity is achieved. Moreover, such micro-processes of innovation during implementation have correlates at the macroeconomic level. As a consequence of such processes, overall development does not follow a linear pattern in which innovation is followed by diffusion of the same technological entity in essentially unchanged form across a sector or the economy as a whole, a pattern adequately described by the general class of epidemiological diffusion models,” (Fleck 1994: 638).

2.6.4 The dynamics of the implementation process

Various scholars have discussed the dynamic aspects of the implementation process (e.g., Leonard-Barton 1988; Tyre & Orlikowski 1994; Yetton et al. 1999; Majchrzak et al. 2000; Edwards 2000). Tyre and Orlikowski (1994: 98) argued that “the process of technological adaptation is not gradual and continuous ... but is instead highly discontinuous,” where discontinuities occur during brief

windows of opportunity which open the constraint set. In contrast, Majchrzak et al. (2000) suggested that Leonard-Barton proposes that adaptations occur continuously in response to misalignments, gradually leading to a successful alignment.

Majchrzak et al.'s (2000) own view is that the adaptation process may be neither inherently discontinuous nor continuous but rather responsive to changes in structural malleability, whenever that may occur. Adaptations are in response to the scale and frequency of discrepant events which will occur throughout a team's lifecycle. In the case of technological configurations, as Fleck (1994) makes clear, "the specific implementation/innovation process ... is a matter of learning through the struggle to get the overall system to work, i.e. a process of "learning by trying": improvements and modifications have to be made to the constituent components before the configuration can work as an integrated entity," (Fleck 1994: 638).

Furthermore, "implementing technology is much like leading a horse to water - although a technology is provided, whether the user will accept the technology is a function of motivation," (Griffith 1996: 32). In this line, Goodman and Griffith (1991) distinguish five processes critical to implementation: socialisation, commitment, reward allocation, feedback and redesign and diffusion. Socialisation refers to the processes by which individuals acquire knowledge and skills, affective and/or evaluative orientations about the new technology. Commitment refers to the binding of the individual to certain behavioural acts relevant to technology. Reward allocation refers to the allocation of different types of rewards relevant to the implementation of new technology. Feedback and redesign refers to the process by which data are collected about a new technology and redesign activities are initiated to enhance the operation of the new technology.

2.6.5 Implementation stages/phases

Fleck (1994) argued that implementation is not straightforwardly linear, but involves feedback and iterative interaction, especially between the design and preliminary realisation phases. Such argument highlights the existence of different phases in the implementation process, each of which requires consideration at certain times in the overall development cycle (Voss 1988; Fincham et al. 1994). Indeed, Fincham et al. (1994) suggested that the implementation process has four broad, interrelated common features: uncertainty, time, organisation, and work.

Thompson (1969) viewed all technology transfer efforts as consisting of a sequence of three processes: initiation, adoption, and implementation, each of which must be considered if implementation success is to occur. Zmud and Cox (1979: 35) viewed implementation as a series of five related activities: initiation, strategic design, technical design, development, conversion and evaluation, each not only involves quite different tasks and specific techniques, but also have evolved for accomplishing these tasks.

Schierer (1983) classified all activities in a total IT transfer process into seven stages: basic research, technology development, diffusion of information, adoption, implementation, outcome assessment, and institutionalisation. The first four phases deal with pre-implementation activities, whilst the last two evaluate the post-implementation operations. Pelz (1985) suggested that the implementation process of complex innovations tend to have more overlap between stages making the process seem more muddled. Voss (1985) divided implementation into four areas; organisation, technical planning, business strategy and management.

Kwon and Zmud (1987) concurred with Thompson's perspective, but argued that the 3-stage model may have overlooked the importance of a post-implementation evaluation process. They proposed a six-stage model by decomposing the implementation stage into adaptation, acceptance, use and incorporation (Lai & Mahapatra 1997). In turn, Voss (1988) proposed a life cycle model of the process of implementation that views the process as three phases: pre-installation, installation and commissioning and post-commissioning. To quote Voss (1988: 59):

"The pre-installation phase includes factors prior to installation that may have a positive or negative impact on the final outcome. While it finishes with the evaluation and the proceeding toward implementation, the installation and commissioning phase finishes when the process of implementation is working successfully. In the post-commissioning phase further technical improvement is likely to take place as well as further activities needed to move beyond technical success to business success."

Coates (1977) proposed a conceptual framework, entitled "Model of Technology Infusion (MTI)." According to Palmer (2000), the MTI Model describes the processes that organisations undergo during three stages as they adopt and apply new technologies: substitution, adaptation, and transformation. At the substitution stage, new technology replaces an older technology (e.g., e-mail replaces telephone). Such changes can have effects on productivity, size of work force, job content, workers' skills, and other variables. With substitution, however, institutional structures, culture, operating procedures, and management expectations still reflect the old workflow and processes.

At the adaptation stage, the organisation begins to adapt to new ways of doing things. Adaptation might be planned or unplanned, such as formal reorganisation, adjustments in responsibilities or shifts in power relationships. The transformation stage occurs when the organisation develops new activities, products, or services made possible by the additional capabilities of the technology. Some organisations can begin to engage in transformational activities as soon as they implement the new technology. Transformational developments can radically restructure the related industry or industries of which the organisations are a part. Organisations that fail to reach the transformation stage risk obsolescence and failure.

Leonard-Barton (1988) suggested that the initial implementation stage, the period during which the technology is first removed from its laboratory setting and introduced into the user environment, is

especially critical. The differentiation of phases/stages, however, does not mean to forget Fleck's (1994) point that implementation is not straightforwardly linear, but involves feedback and iterative interaction. Indeed,

Griffith's (1996) point that implementation follows adoption does distinguish changes made to a given technology from adoption and acknowledges that assumptions are made about implementation (i.e., outcomes of implementation success) during the adoption period. Likewise, Meyers et al. (1999) suggested that separating implementation from adoption does not preclude the possibility that some overlap can occur between the two activities. It also does not mean that implementation is irrelevant for the adoption decision or vice versa. In other words, "the traditionally well-defined phases of trial, adoption, and implementation may be quite fuzzy," (Meyers et al. 1999: 297).

Goodman and Griffith (1991) acknowledge the same fuzziness with regard to their distinction between implementation and institutionalisation and suggest that the concept of learning curve may help in this delineation. Thus, during the implementation of a new technology, some type of learning curve should be observed. As one moves up the learning curve, equilibrium should be reached. It is the persistence of this dynamic equilibrium that would reveal the presence of institutionalisation.

Given, the overlapping, feedbacks and fuzziness between phases, Swanson (1988: 39) is right to argue that implementation "must be understood in the context of the development process as a whole, over the full life course of the system".

2.6.6 Implementation challenges

The discussion on the dynamics of the implementation process draws attention to the challenges surrounding technology implementation. Indeed, the process of implementation is not easy. It usually faces many challenges that prevent implementers from realising benefits. Different authors place the emphasis on different tasks as the main challenge of implementation.

Thus, Goodman and Griffith (1991) suggest that during implementation, the emphasis would be on knowledge and skill acquisition, with later emphasis on affective and then evaluative orientation. In turn, Dhillon (2005) argued that adequate technological benefits can only be realised if commensurate changes are instituted in the business. Klein and Sorra (1996: 1058) argued that the fundamental organisational challenge of implementation is to gain targeted organisational members' use of an innovation: to change individuals' behaviour. Accordingly, they proposed a model of the determinants of the effectiveness of organisational implementation. The primary premise of the model is that "implementation effectiveness – the quality and consistency of targeted organisational members' use of an adopted innovation – is a function of (a) an organisation's climate for the implementation of a given innovation and (b) targeted organisational members' perceptions of the fit of the innovation to their values," (Klein & Sorra 1996: 1056).

Van de Ven (1986) argued that innovations must not only adapt to existing organisational and industrial arrangements, but they also transform the structure and practices of these environments. The strategic problem for institutional leaders is one of creating an infrastructure that is conducive to innovation and organisational learning. To quote Zmud and Cox (1979: 35):

“The major objective in implementation an [IT system] is to realise the intended benefits of [that IT system]. The difficulty associated with achieving this aim tends to be directly related to [that IT system] complexity, which is comprised of technical and organisational aspects... Generally, [for technical aspects], the larger the [IT system] and the more system interfaces required, the greater the technical complexity... [For organisational aspects], as responsibilities rather than procedures are affected by the [IT system], and the higher up the organisational hierarchy the individuals are that are directly affected by the [IT system], the greater the organisational complexity.”

Cooper (1994) argued that technology that conflicts with an organisation's culture can foster resistance of organisational members to a degree that implementation fails or results in less than the desired organisational change. From a management perspective, this culture-IT implementation link is an important factor that may need to be controlled during implementation. In the same line, Cooper and Zmud (1990: 124) argued that “a major concern ... [during organisations' understanding and managing their implementation processes] is the recognition by management of the critical issues to be raised and resolved throughout the implementation process”.

Afuah (2003) pointed out that an organisation faces several economic and organisational roadblocks in technology implementation, including fear of the loss of revenues, lack of incentive to invest in the innovation, fear of being stranded in a smaller network, larger exist costs, obsolescence of existing capabilities, the organisation's dominant logic, political power coalitions, emotional attachment to the old innovation and fear of losing a competence builder in the old technology. An organisation's innovation strategy, organisational structure, systems and processes and people can help overcome these problems and help the firm successfully implement the decision to adopt.

Gopalakrishnan and Bierly (2001) suggested that while the implementation of simple technologies tends to be more orderly, that of complex technologies tends to be charged with multiple, cumulative, convergent, parallel, and divergent streams of activity. This makes the implementation of complex technologies more costly than simple innovations. Nevertheless, the higher the organisational level at which managers define a problem or a need, the greater the probability of successful implementation. At the same time, however, the closer the definition and solution of problems or needs are to end-users, the greater the probability of success (Leonard-Barton & Kraus 1985).

Fleck and Howells (2001) pointed out that modern technologies are obviously more complex at the level of the artefact and they proposed the concept of “technology complex”¹², defined as follows:

“The technology complex is a list of the distinctive ‘elements’ that comprise the disciplinary sub definitions of technology and it orders this list of elements from the ‘physical’ to the ‘cultural’. The principal point of this ordering is that in every definition of technology, there is an artefactual component which is embedded into a specified pattern of human activity and organisational or social context. While this changes between particular definitions, there are none that isolate the artefact from such a context,” (Fleck & Howell, 2001: 524-525).

Cooper (1994: 19) argued that IT that conflicts with an organisation’s culture can foster resistance of organisational members to a degree that implementation fails or results in less than the desired organisational change. From a management perspective, this culture-IT implementation link is an important factor to take care during implementation.

The issue of misalignment between technology and organisation is another challenge. Leonard-Barton (1988: 255) defined the term implementation misalignments as “mismatches between the technology and the organisation recognised at the time of initial or trial use.” She argued that:

“The adaptation process is necessary because a technology almost never fits perfectly into the user environment ... [generating] ... misalignments (poor fits) between the technology and: (a) technical requirements, (b) the system through which the technology is delivered to users, or (c) user organisation performance criteria. These misalignments must be addressed if the implementation is to succeed.... These misalignments can be corrected by altering the technology or changing the environment - or both. These alterations (termed “cycles of adaptation”) vary in magnitude - both for the technology and the user environment - and elicit different levels of effort and resources.” (Leonard-Barton, 1988: 252)

Accordingly, Leonard-Barton (1988) categorised implementation misalignments into three types: technical: the technology with its original specifications or with the production process into which it is introduced; delivery system: the technology with user organisation infrastructure, supporting hardware, software or educational programs; and value: the technology with job performance criteria in the user organisation. Leonard-Barton (1988) argued that technology transfer requires conscious, ongoing dedication to the process of change and the conscious development of mutual adaptation because the technology will never exactly fit the user environment.

Slaughter (1993) suggested that the specification of the connections among components involved in the implementation process will emerge as an increasingly critical area. The specificity of the

¹² According to Fleck and Howells (2001), the technology complex was developed as an aid in teaching technology management by Professor James Fleck at the University of Edinburgh in 1987. It derived from work on the development of factory automation under the ESRC Programme of Information and Communication Technologies (PICT).

application and the fit to site requirements may become more difficult to manage as components are produced in many different locations around the world, and as production in manufacturing moves towards smaller and more customised batches. Recognising the interdependence of the integration of components with the specific information it requires can reshape the assignment of resources and responsibility in technology development.

The case is much more complicated with the implementation of inter-organisational systems, such as e-business. To quote Barrett (1986: 7):

“As [inter-organisational systems] functions become integral to existing information systems, whether automated or manual, the importance of understanding their potential impact becomes a critical success factor. First, each firm exists in a complex socio-technical system where changes in technology may significantly alter the underlying “social” relationship. Second, the most desired outcome of an [inter-organisational systems] strategy is positive synergy between internal and external productivity improvement. While generally thought of as positive, it is possible to have negative synergy.... In an [inter-organisational systems] context, negative synergies may arise from legal or social (internal or external) spillovers such as anti-trust action.”

Indeed, inter-organisational systems take a great deal of effort over substantial periods of time to exist to the point where they can be used effectively in day to day operation (Fleck 1994) and, more importantly, to the point where they can secure some forms of competitive advantage (Fincham et al. 1994). It has been argued that existing organisational arrangements, particularly the existing knowledge base of the organisation and the prevailing distribution of available expertise, have an important shaping effect on the development of technology itself (Fleck et al. 1990; Fincham et al. 1994). In this regards, Gremilliom (1980) suggested that managers should ascertain whether the expertise to perform the evaluation and design strategy is available, and be prepared to expend resources in doing these activities before ordering standardised computer based systems.

2.6.7 Implementation success/failure

“The understanding of the process of implementation and the factors leading to successful technical and business implementation will lead not only to more effective implementation for future adopters of advanced manufacturing technology, but also to improved information and methods for planning and selecting advanced manufacturing technology,” (Voss 1985: 270).

A great deal of literature has discussed the success or failure of technology implementation (e.g., Van de Ven; 1986; Voss 1988; Meyers et al. 1999; Dhillon 2005). A number of generic technology success models have been developed and tested in recent years (e.g., Davis 1989; Seddon 1997; Rai et al. 2002; Umble et al. 2003; King & Burgess 2006). However, it is very important at this stage to define the meaning of technology implementation's success or failure. In Voss' (1988: 58) words, “what constitute success (or failure) in implementation?”

Voss (1988) argued that full success can only be considered to have been realised if the benefits being looked for are realised, and ideally realised in the market place through increased competitiveness. Voss (1985) proposed two levels of success in implementation: technical success and business success. The later includes productivity increase alone, productivity increase plus realisation of other benefits and translation of the above into real competitive advantage in the market place. Dean et al. (1990: 131) suggested a critical aspect of success, "the extent to which [technical, economic, and political] objectives are met is a critical aspect of project success, as technical performance is the sine qua non of effective implementation."

In a similar fashion, Goodman and Griffith (1991) suggested that one sign of successful implementation is the emergence of the normative and value consensus with respect to a particular technology. Swanson (1988) suggested that success in information system implementation is a matter of stabilising a fit among a number of important factors, among which are user involvement, management commitment, value basis, mutual understanding, design quality, performance level, project management, resource adequacy, and situational stability." Meyers et al. (1999: 297) defined success as "a broad range of favourable outcomes during, and as a result of, implementation, such as time- and cost-efficiency and effectiveness, full utilisation of innovation capacity and capabilities, increased productivity, and reduction of process errors."

Klein and Sorra (1996: 1058) conceptualised "implementation effectiveness as an organisation-level construct, describing the overall, pooled, or aggregate consistency and quality of targeted organisational members' innovation use." Whereas Dhillon (2005) pointed out that success should be experienced and defined by the stakeholders within the wider environment of the system. It will be encountered or defined neither from within the IT system itself nor from within the formal system which the IT system supports.

In a converse angle, Klein and Sorra (1996: 1055) have focused on the meaning of failure in technology implementation. Thus, "an organisation's failure to achieve the intended benefits of an innovation it has adopted may thus reflect either a failure of implementation or a failure of the innovation itself... Implementation failure [is] the case of many organisations' inability to achieve the intended benefits of the innovations they adopt." In addition, these authors argue that implementation failure occurs when employees use the innovation less frequently, less consistently, or less assiduously than required for the potential benefits of the innovation to be realised. Griffith (1996: 32) follow a similar view stating that "a user may not need the technology, a user may not think the particular technology suits his or her needs, or a user may think that if use is made of the technology, noxious events are likely to result." For this author, technology implementation will succeed when it is perceived by the participants to be in their best interest.

A number of studies have suggested approaches to enhance the chances of success in technology implementation (e.g., Alavi & Henderson 1981; Voss 1988; Cooper & Zmud 1990; Fincham et al.

1994; Majchrzak et al. 2000; Gopalakrishnan & Bierly 2001; Fleck & Howells 2001; Linton 2002; Umble et al. 2003; King & Burgess 2006). For instance, Voss (1988) suggested that the factors likely to influence the success or failure of implementation at the “pre-installation” phase are technical planning, strategic links, acquiring skills and top management support while that at the “installation and commissioning” phase are links and suppliers, project management, implementation by cross-functional team and start-up management. Changing the organisation, managing the learning process, appropriate operational control, high performance orientation, and changed accounting system are factors likely to influence during the “post-commissioning” phase.

Goodman and Griffith (1991) propounds that feedback and redesign is a necessary process for successful implementation as the intended functionality of the technology and actual functionality initially are likely to be different. Accordingly, they proposed constituencies as important components in the conceptualisation of implementation success:

“To understand the effectiveness of any new technology requires delineating the relevant constituencies. The function of the constituency is to generate standards and referent points. A standard could be the accuracy or ease of use of an information based technology. The referent refers to the point on the standard which is acceptable or unacceptable,” (Goodman & Griffith 1991: 277).

The importance of the role of organisational culture in technology implementation is stressed McDermott and Stock (1999). They contended that organisations’ emphasis on one set of cultural characteristics might attain operational benefits, while emphasis on a different set of cultural variables might more effectively obtain competitive benefits. Dhillon (2005: 503) stressed something similar, arguing that “although the choice of an appropriate methodology is important in ensuring project success, it is not the only factor. It is equally, if not more, important to examine the organisational context that the information system is being developed for.” Linton (2002) proposed linking five factors to obtaining a successful implementation process: organisational structure, technology, project management, divisibility, and social interactions.

The provision of incentives to personnel is addressed by Griffith (1996) who suggested that negotiation strategies can be used to create integrative solutions in which incentives to use the technology are explicitly addressed and distributed most effectively. In a related view, Yetton et al. (1999) proposed that end-user adoption is influenced by an evaluation of two sets of innovation characteristics - task relevance, the extent to which the end-user perceives the innovation is relevant to his/her task and role, and task usefulness, the extent to which the end-user believes it enhances task performance.

An additional theoretical input to enhancing the chances of successful implementation comes from the adaptive structuration theory of DeSanctis and Poole (1994). They portray the process by which technologies are adapted as consisting of structures, appropriations, and decision outcomes. According to Majchrzak et al. (2000), DeSanctis and Poole (1994)’s model describes three sources of structures

as pre-existing conditions that form the context in which the technology is implemented and, as such, affect appropriations, which in turn affect decision processes and outcomes. Technology structures include the restrictiveness, sophistication, and comprehensiveness of its features as well as the technology's "spirit," the general intent of the technology with regard to values and goals. Task and organisational environment refers to the nature of the task and the organisational setting such as hierarchy, corporate information, and cultural beliefs. The group's structure includes the interaction patterns and decision-making processes of its members.

Majchrzak et al. (2000) define appropriations as the immediate, visible actions that evidence deeper structuration processes. Assessment of appropriation processes is at the heart of the adaptive structuration theory framework, by documenting exactly how technology structures are being invoked for, or constrained in use in, a specific context. Appropriations can be analysed for their faithfulness, their instrumental uses, or the users' attitudes. One hypothesis proposed by DeSanctis and Poole (1994) is that the more faithful the appropriation - i.e., the more that appropriations align with the technology's initial intent - the more likely the team's decision processes will lead to successful outcomes.

2.6.8 Implementation and implementers (managers) responsibilities

The critical role of the implementer in the success of implementation process has been clearly highlighted in the literature. For instance, for Swanson (1988: 11):

"The position of the information system implementer is necessarily existential, situated within a context of commitments and expectations established by the designer on behalf of the prospective user.... The fundamental responsibility of the implementer is to tend to the fitness of the system under development; health is systemic, and specific problems are often only symptomatic... The role of the implementer is basically that of an intermediary in the system realisation process."

In turn, Leonard-Barton (1988) sees managers as playing the role of implementers. She argued that the successful management of technology transfer from developers to users requires that managers recognise and assume responsibility for both technical and organisational change. Dean et al. (1990) suggested that managers must consider three types of objectives - technical, economic, and political (TEP) - in making implementation decisions. The technical objective requires that the system be successful in meeting the technical performance requirements associated with the manufacturing process in question. The economic objective requires that the firm be in a stronger financial position after a technology is implemented. The political objective requires that the new system satisfy its sponsors and users by helping them to achieve their respective goals, and to enhance or at least maintain their organisational status.

The central role of championing has long been recognised in the innovation literature. In a well-known British study called Project SAPPHO¹³, conducted between 1968 and 1971, the characteristics of the innovation process were studied in great detail (Parker 1974). The results of SAPPHO indicated that the business innovator's power, responsibility, status, and experience were particularly important correlations on innovation success. It also confirmed a correlation between the presence of a product champion and innovation success. Champions should begin with an appreciation of the physiological limitations of human beings to pay attention to non-routine issues, and their corresponding inertial forces in organisational life (Van de Ven 1986). The more specialised, insulated, and stable an individual's job, the less likely the individual will recognise a need for change or pay attention to innovative ideas.

Griffith (1996) suggested that implementers approach the technology change process as they would a negotiation, by looking at the variety of interests and motivations for those involved in the implementation. Implementers can uncover information regarding participants' needs to create integrative solutions that result in tacit agreement and technology use. These solutions may include information dissemination, creating different reward structures, or changing the way the technology is used. If implementers also engage in express negotiations with participants, even greater value may be uncovered and commitment may be created as well. Yetton et al. (1999) suggested that managers need to distinguish between the individual level and group level impacts of IS innovations.

2.6.9 Broad implementation approaches

Boland (1978) has identified two broad implementation approaches: the traditional approach and the change approach. The traditional approach identifies the systems analyst as the major force in implementation. Directing each of the implementation stages, the systems analyst engages in learning, analysis, and synthesis activities while the intended user of the MIS is only passively through responding to specific inquiries by the systems analyst. The change approach emphasises the joining together of the systems analyst and the user as a problem solving team to discover an appropriate solution through mutual teaching and criticism. The choice between these approaches is subject to interpersonal, political, sociological, and psychological factors (Zmud & Cox 1979). In other words, the traditional approach is appropriate when the IT system being implemented aims to automate a well-defined procedure, is independent of other organisational systems and results in little organisational change. In turn, the change approach is appropriate when the organisational activity

¹³ According to Curley and Gremillion (1983), the basic idea of the study was to substantiate or refute generalisations about technical innovation by systematic comparison of pairs of successful and unsuccessful attempts to innovate in the scientific instrument and chemical industries. Of the 200 measurements considered, only a small number differentiated clearly between organisations which had succeeded and those which had failed. Among the most important was the role played by key managers and technologies in the innovation process. Four specific roles were identified, include technical innovator, business innovator, product champion and chief executive.

involved is ill-defined, the MIS must interface with other organisational systems, and, most importantly, substantial organisational change is expected.

Another pair of alternative strategies: evolutionary and traditional, is proposed by Alavi and Henderson (1981), who investigated the implementation of Decision Support Systems (DSS). The evolutionary approach utilises judgement modelling as a means to create felt need, to provide insight into the decision process and the implied weighting of decision variables and to establish a learning-based, participatory implementation strategy. In contrast, the traditional approach is characterised by a problem solving orientation wherein the DSS is portrayed as providing a valuable product that can be theoretically justified. The results of Alavi and Henderson's (1981) investigation suggested that a process-oriented evolutionary implementation strategy is more effective when implementing an analytical model. They also indicated that the relationship between an individual IT system (e.g. DSS) design, implementation, and individual learning processes is important and hence should be explicitly considered. Howells (1993: 170) suggested that "where there is a shifting political-commercial environment, the evolutionary approach to technical decision making is probably more appropriate than the big-bang approach."

Elsherif and Elsayy (1988) provided a different approach for managing the design and delivery of information and decision support systems for strategic decision making. The distinctive features of the approach include a focus on issues rather than decisions, a distinction between information support services and decision support services, prototyping the management of delivery as well as design and a dynamic tracking back-end.

2.6.10 Some empirical work on e-banking implementation

The aim of this section is to look at some of the theoretical issues of technology implementation discussed in the earlier sections in the empirical setting of e-banking. Consoli (2005) suggested that banks implemented and developed IT to enhance their processing capacity, expand the range of services, and be able to capture a larger share of customers. In turn, Fincham et al. (1994) contended that in the financial services sector in general, implementation represents the key process through which strategic technologies are socially constructed.

The matter of e-banking implementation is an issue that has received a great deal of attention in the literature. The broad aim of such literature is to propose theoretical tools that enhance the success of e-banking implementation. An example is the work of Buzzacchi et al. (1995) on the Italian commercial banks. The study proposed a conceptual model to analyse innovations originating from the diffusion of information technologies in the banking sector. The model emphasises the crucial role played by demand-pull variables in stimulating innovative behaviour under the "smart automation regime."

Southard and Siau (2004) looked at the differences between very large banking organisations and smaller community banks in the utilisation of e-banking, and, in what ways each group of banks is

utilising e-banking technology. The study proposed an “e-banking continuum,” that distinguishes the different strategies followed by banks in utilising e-banking. Accordingly, the study suggested that small banks focused more on external portals, while large ones focused on maximising internal information and services.

Bauer and Colgan (2001) suggested that moving towards e-banking offers both banks and customers a sharp reduction in costs, new types of services (e.g., real-time trading) and the convenience of anytime, anywhere banking. Gurau (2002) suggested similar advantages. Online banking furnishes banks with many advantages, including improving market image, reducing transaction costs, responding more quickly to the market evolution and increasing market penetration. Akamavi (2005) examined activities of a financial service innovation process through a critical analysis of the operational process of opening a Lloyds TSB Student Account at a local branch.

Centeno (2004) looked at the level of supply, level of adoption by customers, drivers, and barriers for development, and potential private/public policy options for Internet banking adaptation in European Union countries (EU15) and in European Candidate Countries (ACCs). The study proposed a model of adoption factors that includes access technology and infrastructure, and sector specific retail banking aspects. The model indicated that adoption is influenced by a complex set of different factors related to access technology and infrastructure and to the specific retail banking sector. Yakhlef (2001) suggested that in implementing the Internet, firms go through different levels of exploitation, ranging from a marketing approach, involving information presentation, interactivity, transactions, and dynamic customisation, to a strategic approach which is pertinent to redefining and transforming the business model.

Johnston and Yetton (1996) looked at strategies for the effective integration of IT divisions for the success of a merger of two Australian banks. The study incorporated Mintzberg's (1979) organisational typology into the elements of the MIT'90s schema (Scott Morton 1991) to propose a framework for analysing the fit of two IT configurations implemented at the two banks. The authors argued that an understanding of organisational and strategic fit at the level of the IT organisation can contribute to effective management of IT integration.

Daniel (1999) tried to quantify the current provision of electronic services by retail banks in the UK and the Republic of Ireland. The study suggested five factors affecting the provision of e-banking: organisational culture of innovation, market share, or strength of the organisation, organisational restrictions, and limitations, prediction of customer acceptance, and vision of the future.

Simpson (2002) investigated the risk, efficiency, and rate of progress in the implementation of e-commerce in a sample of banks from USA and a sample of banks from developing and emerging markets. Lymperopoulos and Chaniotakis (2004) found 14 potential implications of e-banking adoption identified in the literature review. These are cost reduction; image improvement, innovator's

advantage, queue minimisation, increase of sales, customers' alienation, customer service and satisfaction, employees reduction, competition with foreign and non-banks, price competition, service differentiation, market transparency and increased risk.

2.6.11 The case of EFTPOS network in the UK

Howells and Hine (1993a) reported a case study about the development of EFTPOS network in the UK during the late 1980s. The case is relevant to the discussion on e-banking implementation as it demonstrates, among other issues, the development challenges, as well as the changes in competitive structure that may result from collective exploitation of IT. The case study was grounded on a theoretical analysis of interview transcripts and concerned "network decisions" and the perceived relationships between "technical" and commercial" influences on EFTPOS design choices (Howells 1997).

Before discussing the challenges and the changes in competitive structure, it is important to take a snapshot to the EFTPOS network in the UK during that time. Fleck and Howells (2001: 530) positioned the EFTPOS network in the UK within their "technology complex", suggesting that the design and implementation of EFTPOS is a social process of implementing a complex technology (see Figure 2.6.I).

Physical science

Equipment suppliers such as IBM make decisions on how to deliver functionality through artefact design. Physical science knowledge is incorporated into the microchip components that they assemble. These 'supplier decisions' influence the decisions of the banks via the functionality of the alternative artefact designs made available to the banks.

Material/artefact

The artefact component is obvious: the computers, the communications links and terminals. As these vary in their characteristics between suppliers, the choice of artefact components requires expertise on the part of the banks.

Topology/layout

Artefacts and software are 'shaped' by decisions on the topology of the network. For example, it was possible for terminals in retailers to stand alone, or to be integrated into the retailers' own equipment. The decision depended on whether the banks could override the retailers' preference for an integrated solution. Another example—individual banks may process transactions collected directly from retailer terminals, or they may agree to process transactions in a jointly-owned processing centre; the choice is between different ownership structures, location of processing equipment and degrees of competition in the provision of a service to retailers.

Procedures/software

There is a choice of procedures to be embedded in software. An example concerns the level and form of security the network will provide; one possibility is to encrypt electronic messages. There are many ways of designing encryption into a network, each alters the time of processing, the degree of security, the cost of processing.

Organisational location of technical expertise - knowledge/skills

The banks had to decide on how to source the necessary expertise that would inform their network design strategy. Should it reside within the (banks') organisation, in external consultant firms, or in IT supplier companies? The banks tried each of these arrangements in turn.

Hybridisation of expertise

Another issue was whether the banks should attempt to 'hybridise' the technical expertise with commercial banking knowledge, so that a more powerful form of expertise was available to the banks.

The banks did not attempt to do so.

Work organisation

The process of network design may be conducted by external (to the banks) consultancies, by hybrid organisations owned by the banks and consisting of seconded-in technical experts, or by the IT departments of the banks. The banks tried each of these organisational regimes in turn.

Management techniques

The banks recognised that project management experience was an essential component of the design of large networks like EFTPOS; they were impressed that other organisations had experience of this technique while they did not; this encouraged them to contract out this work. An alternative strategy would have been to bring such expertise in-house.

Organisational structure

The banks began with a jointly owned company to commission a network design and manage its construction. They would eventually devolve responsibility for the design and implementation to their IT departments.

Cost/capital

The cost of IT networks is large, the returns depend on the speed with which paper-based systems can be closed down. There is a role here for sophisticated financial evaluation techniques, but the banks did not use financial evaluation for EFTPOS. The impetus for the technology derived from inter-bank competition rather than cost of capital calculations.

Industry structure

The banking industry is an oligopoly and this allows a range of cooperative or competitive approaches to large scale projects. The banks began by cooperating fully in their approach to EFTPOS, but cooperation broke down. One subgroup developed the Switch debit card service, other banks utilised the VISA system to deliver a debit card service.

Social/legal relations

In 1986 the UK government passed legislation that allowed Building Societies to compete with banks. This helped prompt the breakdown of the banks' cooperative approach to network design.

Culture

Bank 'culture' was evident when the banks used their past experiences with each other and with IT to structure EFTPOS technology. On past IT projects technical people were treated as peripheral to the core business and tended to be kept either outside the organisation or in a separate department - the IT department. Past experience of government led the banks to expect the Bank of England to regulate the sector and to signal its approval or disapproval of bank strategies. On the EFTPOS project some banks continued to wait for Bank of England guidance, some interpreted Bank of England statements as signalling approval or disapproval; late in the project most banks agreed there was no longer the close supervision of earlier years.

Figure 2.6.I EFTPOS technology as an example of the technology complex (Fleck & Howells 2001: 527; reproduced from Howells 2005: 5)

Fleck and Howells (2001) found that a complex set of choices of artefacts and social arrangements were available to be defined by the banks and that these can be categorised by the full range of elements in the "technology complex". Accordingly, Fleck and Howells (2001: 523) argued that "there is not an "either-or" issue between the social and the technological influences on change since the terms are not distinct: "technology" always includes some aspect of the social". "Decisions in these categories served to define the IT network that was eventually implemented," (Fleck & Howells 2001: 526; Howells 2005: 4).

The technology of EFTPOS as a network technology comes under the umbrella of configurational technology. This suggested that the EFTPOS network has a variety of design typologies rather than an optimal one. Such variety meets a variety of social and organisational criteria that must be set by the participants (e.g., banks and retailers) (Howells & Hine 1993c). The first challenge emerged during the design stage of the EFTPOS network was that the design of the network changed repeatedly. In

reality, the design was ultimately shaped by the desire of some banks to develop strong inter-bank alliances around different designs although the EFTPOS network started to enhance money transactions processes. Accordingly, the problem of using a variety of reference markets emerged. The first design concept to be proposed was the use of the established automatic machine (ATM) network to inform design of the EFTPOS network. Such proposed design was build on the assumption that the patterns of use of the EFTPOS network would be similar to the use of the ATM network (Howells 1997).

The origins of such changes in the competitive structure go back to the collective exploitation by banks of IT systems. UK banks acted individually before 1985 to introduce commercially and technically distinct EFTPOS networks. However, the banking sector perceived the need to collaborate to introduce a common infrastructure for sophisticated EFTPOS network and share its development cost. The EFTPOS aimed to help banks reduce the transactions cost of paper-based money, such as cheques. The collaboration between the banks turned to competition within the EFTPOS UK Ltd, the company established by the banks to introduce the national EFTPOS.

However, Barclays, as the biggest merchant acquirer, feared that its dominance on the clearing business would be eroded by the proposed EFTPOS. Barclays issued the UK's first credit card in 1966 and, a few years later, the ATM network (Consoli 2005). Accordingly, Barclays introduced its Visa Connect Scheme. Lloyds took a similar step through the introduction of its Visa Debit Card. In order to counteract the two initiatives, an alliance between Midland, NatWest, and the Royal Bank of Scotland formed the Switch Card Scheme. These initiatives resulted in the termination of EFTPOS UK Ltd.

The development of EFTPOS in UK also met with the typical uncertainty affecting configurational technology development. In Howells and Hine (1993b: 58-59)'s words:

“Throughout the development of EFTPOS the banks were learning how technical and commercial considerations could be related and were trying to establish and control the end game which would result from their competitive behaviour. In comparison with the period of relatively stable technology predating EFTPOS, the new technology can be considered to carry the uncertainty which renders the strategic decision-making process so uncertain. This uncertainty arises because hardware – terminals, telecom links and host processors – can be linked to social and commercial relationships in many ways. As part of this process the banks play strategic games based on an imprecise knowledge of the effects of their actions, a partial understanding of the implications of their technical choices and of the positions of other banks. The technology generates this uncertainty as there is no predetermined, optional way of building the network and the commercial framework which links into it. The network is built as technical components are chosen which fit a bank's commercial position, but as it physically takes shape the technical components alter the commercial reasoning of other banks and hence the environment of the implementing bank.”

Despite the apparent advantages of cooperation in such a large project, disagreements between the two competing sub-groups undermined the realisation of a unique EFTPOS network (Consoli 2005). According to Fincham et al. (1994: 28), “the launch of the EFTPOS network foundered partly because the parties (banks and large retailers like supermarkets) could not agree on processing costs. The development shifted from collaborative to competitive mode, and eventually was abandoned, as it was unclear who was getting the savings and who should cover the costs of processing. Also, the financial returns on the intermediary role mean that many services are provided free of charge.” Arguably, “this failure in coordination reflected the changing structure of a banking market which was moving away from the former oligopolistic structure and in which the influence exerted by new entrants had become progressively stronger,” (Consoli 2005: 470).

2.6.12 Conclusion

This section has looked in details to the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. It has clarified the term “implementation” and looked briefly at the relation between implementation, innovation and diffusion, the dynamics of the implementation process, and its different stages/phases. It also looked at the implementation challenges, success and failure, implementers’ responsibilities and broad implementation approaches, before ending with a brief review of empirical studies related to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s.

This review has revealed the complex nature of the processes of implementation of e-banking, with technological and organisational aspects deeply interacting in a process that shows a non-linear dynamics and a fundamentally socio-technical nature. These findings of the implementation literature provide an excellent background for the identification of structured process approaches useful to analyse in detail and comparatively the emergence and evolution of concrete e-banking experiences in Saudi Arabia.

Next I discuss the sociotechnical approach with particular focus on the “sociotechnical constituencies” approach (Molina 1990; 1993) that seems to offer a more structured framework to organise the comparative study of concrete e-banking experiences, particularly through its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005).

2.7 “Sociotechnical constituencies” approach

2.7.1 Introduction

Yin (2003) suggested that analysing case study evidence requires a general analytical strategy. Yin proposed three strategies; relying on theoretical propositions, setting up a framework based on rival

explanations, and developing case descriptions. Hussey and Hussey (1997) suggested that the use of theoretical propositions in analysing case study evidence helps to frame the research and give possible interpretations of what is observed.

This thesis utilises the theoretical propositions strategy to analyse the case studies on the Saudi Arabian e-banking via the adoption of a sociotechnical approach, particularly the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005). The aim is not only to use the approach to reveal how banks build their e-banking capabilities and create new value strategies, but also to test critically the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding e-banking value creation and capabilities-building.

Accordingly, this section looks first at the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tool of the “diamond of alignment” (Molina 1995). Next, the section assesses critically the potential of applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) to analysing the emergence and evolution of e-banking in Saudi Arabia. This is followed by the introduction of the recent analytical tools associated with the “sociotechnical constituencies” approach (Molina 1990; 1993): “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005).

2.7.2 “Sociotechnical constituencies” approach

The sociotechnical tradition is usually traced back to the work of Trist and Bamford (1951) from the Tavistock Institute. In the 1980s, a number of “social theory” concepts (some of which we shall look at later on) came to enrich the sociotechnical approach to the understanding of technology. These included, the social studies of technology (SST), social construction of technology (SCOT) (Pinch & Bijker 1984), actor-networks (ANT) (Callon 1986; Latour 1988), sociotechnical constituencies approach (Molina 1990; 1993), and later sociotechnical ensembles and frames (Bijker 1993). All these approaches share the fundamental premise that technological processes involve the integration of social and technical actors or constituents, but they differ in the specific concepts they propose to deal with the integration of the social and the technical.

The “sociotechnical constituencies” approach (Molina 1990; 1993), in particular, offer conceptual instruments that seem useful to carry out a more structured analysis and evaluation of various dimensions of sociotechnical processes such as the emergence and development of e-banking in Saudi Arabia. For this reason, the discussion of this section is constructed around the “sociotechnical constituencies” approach (Molina 1990; 1993), addressing other “social theory” approaches particularly in the context of the critical analysis of “sociotechnical constituencies” (Molina 1990; 1993).

Molina (1990) argues that all processes of innovation and technology development imply the construction of “sociotechnical constituencies”. In Molina’s (1999: 8) definition:

“[Sociotechnical constituencies are] dynamic ensembles of technical constituents (e.g. machines, instruments) and social constituents (e.g. institutions, interest groups) which interact and shape each other in the course of the creation, production and diffusion of specific technologies”. ... Thus, the term “sociotechnical constituencies” emphasises the idea of interrelation and interaction in innovation and technological development. It makes it possible to think of technical constituents and social constituents, but always stressing the point that in the technological process, both kinds of constituents merge into each other.”

Indeed, as we have seen, successful implementation is precisely a matter of establishing a fit among a number of important factors, among which are user involvement, management commitment, value basis, mutual understanding, design quality, performance level, project management, resource adequacy, and situational stability (Swanson 1988).

Figure 2.7.I shows Molina’s original diagram published in Research Policy in 1990 and created to illustrate one possible inter-organisational sociotechnical constituency in the field of microprocessors. It is most likely that “sociotechnical constituencies” approach (Molina 1990; 1993) focused on ICT-based innovations in areas such as e-banking, will differ in the mix of institutional constituents, and there will be many forms and sizes depending on the specific type and institutional level of the innovations. Some may be confined to one bank, others to the entire banking system; some may be national or regional in scope; some may involve networks of finance institutions, research centres, government departments and so on, virtually ad infinitum.

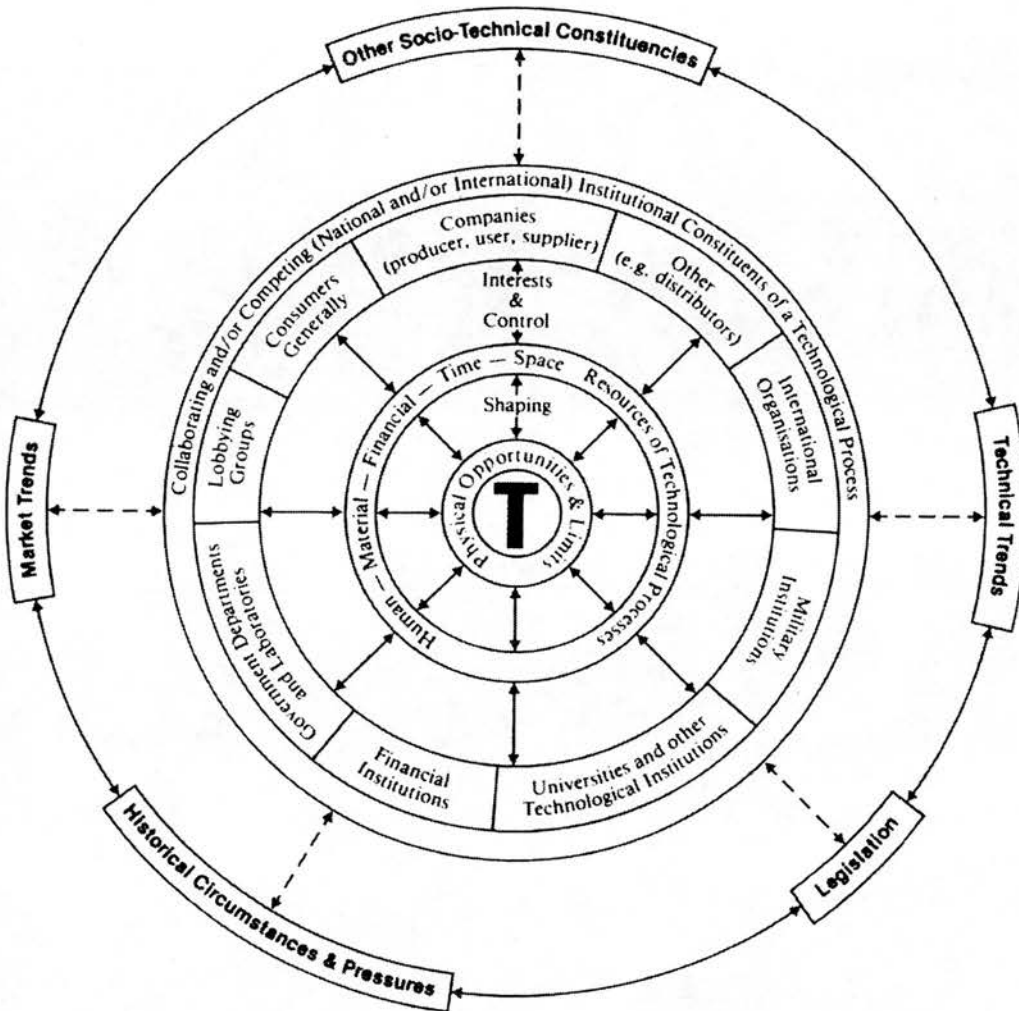


Figure 2.7.I Institutional representation of a possible sociotechnical constituency (Molina 1990: 311)

According to Molina (1990: 311-312; 2005: 3-5), there are, however, certain essential features common to all sociotechnical constituencies. The sociotechnical constituency shown in Figure 2.7.I has four circles.

The (T) letter at the centre of Figure 2.7.I indicates the focus of the “constituency-building” approach. This is “the process of development of technological capabilities and innovation, visibly manifested through elements, such as better services, tools, skills, products, standards and ultimately users’ value,” (Molina 2005: 3). The letter (T) at the centre of Figure 2.7.I also represents the technology being created, produced, diffused, or implemented (Molina 1990; 2005). For example, in the case of EFTPOS network in the UK (Howells & Hine 1993a), the “T” will represent the EFTPOS network.

The small arrows represent the direction of influence. As such the arrows are double-ended, indicating that the flow of influence may be bi-directional, flowing from the inner circle of technology (T)

towards the outer circles and vice-versa (Molina 1990; 2005). In the case of the EFTPOS network in the UK (Howells & Hine 1993a), the double-ended arrows would indicate that the influence goes from the EFTPOS network towards the UK banking sector.

Moving outwards, the second circle “physical opportunities and limits” indicates that technological processes and their results are shaped not only by the opportunities (and threats) existing in the physical world, but also by the nature and state of the art of the pertinent technology at any given time (Molina 1990; 2005). In the case of the EFTPOS network in the UK (Howells & Hine 1993a), for instance, the development of standards during the design stage challenged the realisation of a unique EFTPOS network difficult (Consoli 2005).

The third circle indicates that technologies and innovation are the result of an integration of many resources, including time, space, human, material, and financial. Such resources are not static. Rather, they evolve continuously as the sociotechnical constituency evolves. For example, “a single new idea generated by an individual has the potential to change the constituency,” (Molina 1990: 312; 2005: 4). The case of e-banking is a good example of how a new concept and its consequent development through resource integration can change the development of an entire sector, taking its present and future evolution beyond the limitations of physical bank branches. In the case of the EFTPOS network in the UK (Howells & Hine 1993a), for example, Barclays integrated its financial capabilities as both the dominant player on the clearing business and the issuer of the UK’s first credit card (Consoli 2005) with its ATM network to create its Visa Connect Scheme.

The fourth circle shows that the process of resources integration happens through the institutions housing and controlling the resources. Consequently, these institutions shape the development of a given technological process or innovation in according not only to their own interests and concerns, but also with their relative weight within the constituency (Molina 1990; 2005). In the case of the EFTPOS network in the UK (Howells & Hine 1993a), for example, Midland, NatWest and the Royal Bank of Scotland (i.e. social constituents) integrated their network technical resources (i.e. technical constituents) to form the Switch Card Scheme and compete with Barclays’ Visa Connect and Lloyds’s Visa Debit Card schemes, a process that led to the termination of the EFTPOS UK Ltd (Ghuloom 1997).

Having described the four circles constituting the sociotechnical constituency shown in Figure 2.7.I, the question is whether the vision and objectives of the sociotechnical constituency building process are well defined from the beginning? Molina (2005: 5) answers:

“Despite their perception of benefit, institutions participating in a sociotechnical constituency do not invariably have a clear idea of where their specific interests lie in relation to a given innovation. Nor does the development of this innovation invariably follow the intended path or yield the results expected by the constituents. Often, unpredictable and possibly unidentifiable factors have unintended consequences which make the difference between success and failure. This uncertainty is inherent in

technological processes, particularly where constituents are trying to break completely new technological ground,” (Molina 2005: 5).

Going back to the case of EFTPOS network in the UK (Howells & Hine 1993a), for example, uncertainty emerged as the development process evolved. This was due to the fact that UK banks did not have a well-defined mechanism of how they would cooperate with EFTPOS UK Ltd. to build such a strategic IT system. They presumed that the objective of the project was basically technical. However, as the design and implementation processes took place, such objective revealed its strategic economic importance, leading a repositioning against each other.

Finally, the outermost circle of Figure 2.7.I, illustrates that the sociotechnical constituency interacts with other sociotechnical constituencies. To quote Molina (Molina 1990: 312; 2005: 5):

“... A given technology is not simply the result of an insular, intra-constituency process. It is also the result of that sociotechnical constituency’s interaction with other sociotechnical constituencies, within its particular historical setting. It is influenced, for example, by legislative, technical and market trends which are themselves the result of interaction between sociotechnical constituencies. Thus, technical and market trends, to take two examples, are not external to constituencies: sociotechnical constituencies themselves create and alter them according to the extent of their relative strengths, dynamism, and growth,” (Molina 1990: 312; 2005: 5).

In the case of EFTPOS in the UK (Howells & Hine 1993a), the EFTPOS sociotechnical constituency failed to create a single constituency and eventually could not survive the inter-constituency battle between the Switch Card constituency supported by Midland, NatWest and the Royal Bank of Scotland, the Visa Connect constituency supported by Barclays Bank and the Visa Debit Card constituency supported by Lloyds Bank.

2.7.2 Sociotechnical alignment process

The “sociotechnical constituencies” approach (Molina 1990; 1993) defines the process of sociotechnical alignment as “the process of creation, adoption, accommodation (adaptation) and close or loose interaction (interrelation) of technical and social factors and actors that underlies the emergence and development of an identifiable constituency” (Molina 1997: 604). Molina proposes that sociotechnical alignment is what social constituents try to do when they are building a sociotechnical constituency, for instance, by promoting the development of a specific technology either intra-organisationally, inter-organisationally, or even as an industrial standard. The basic aspects of the process of sociotechnical alignment can be illustrated through the use of the “diamond of alignment” (Molina 1995) of Figure 2.7.II.

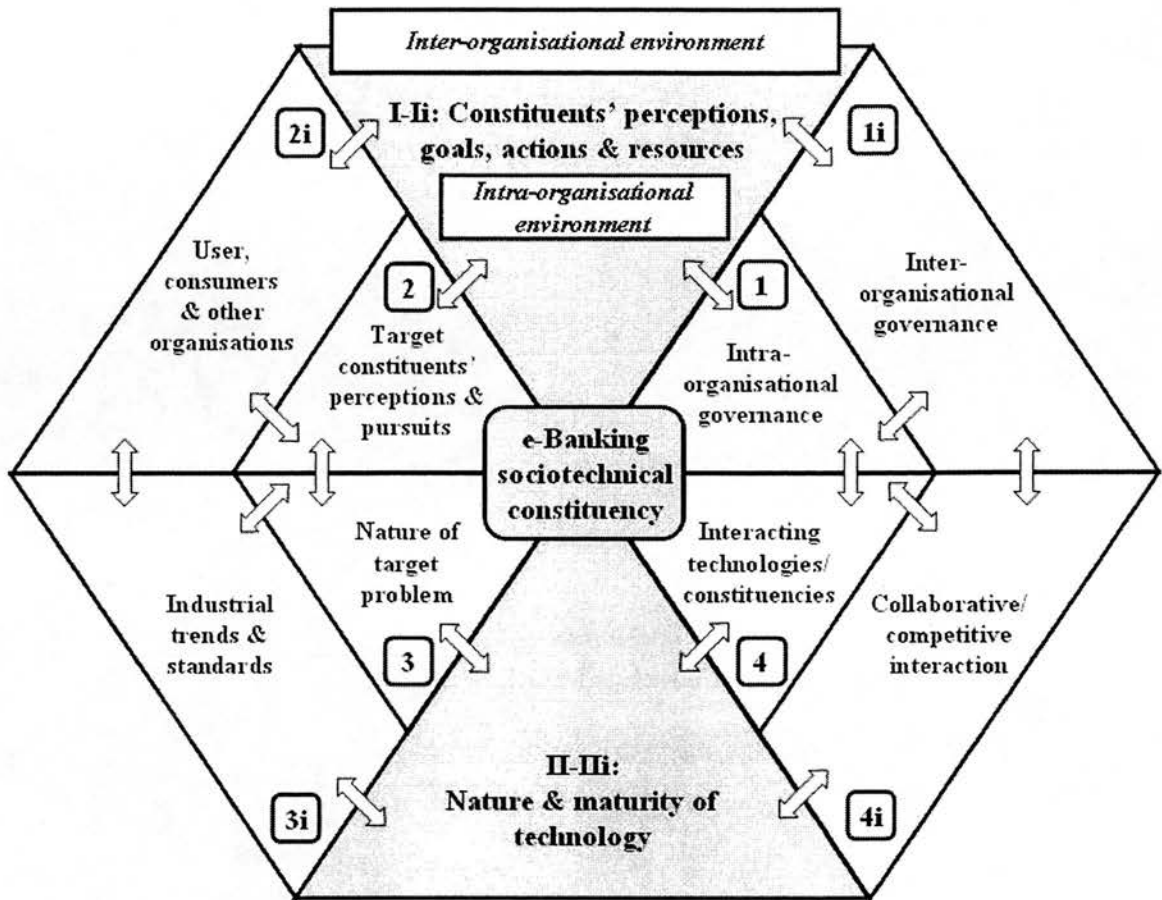


Figure 2.7.II The diamond of alignment in sociotechnical constituency building (Molina 1999b: 303, modified)

This particular diamond has two levels: intra-company level and industrial/market (inter-organisational) level. Molina (1997) explains that the shaded areas (I-II) and (II-III) represent the sociotechnical constituency in its state of development at the time under study (i.e. products, services, people, resources, reputation, etc.); the areas (1-1i), (2-2i), (3-3i) and (4-4i) represent aspects of critical influence to the success or failure of the process of constituency-building, reflected for instance, in the market success of the constituency's products/services. Table 2.7.I describes the content of each one of the aspects in the diamond. Molina (1997) argues that the success of the constituency's product/s depends critically on the effectiveness of the alignment, or management of misalignment, of all these aspects of the process of creating market success.

(I-II) Constituents' perceptions, goals, actions and resources

This dimension relates to the present state of the constituency's resources: the type of organisation, people, material, and financial resources, knowledge, expertise, experience and reputation and other elements, such as current perceptions, goals, visions, and strategies. In short, what the constituency is at a given point in time.

(II-III) Nature and maturity of the technology

This dimension highlights the importance of the nature and maturity of the constituency's technology for strategy. Constituencies' strategies must be aligned with the strategic opportunities and limits implicit in the particular characteristics of technologies. It is a simple fact that the nature of e-banking is different from that of hammers or drugs, and a 'universal' approach will not do.

Alignment (1-1i) – Organisational governance

This dimension highlights the importance of alignment of the constituencies' technologies with the governance and strategic directions of organisational, industrial and market environments. In an intra-organisational context, this means, on the one hand, that the market or objective addressed by the technology is perceived as highly significant to the organisation's performance; on the other hand, it means a simultaneous perception that the potential technical and market solution is promissory and viable so as to merit allocation of resources and market demand.

Alignment (2-2i) - Target constituents' perceptions and pursuits

This dimension relates to the people and organisations the constituency is seeking to enrol behind its technology. This includes alignment of perceptions and goals between the technology developers and potential or 'target constituents' in the organisational, industrial and market environments, including users, suppliers, and other relevant organisations, such as independent developers.

Alignment (3-3i) - Nature of target problem

This dimension highlights the importance of alignment between the capabilities of the constituency and the technical requirements of envisioned products/services and markets (e.g., target functionality and cost). This includes alignment between the technology and widely recognised technical and market trends and standards in the target industrial area (see alignment 4-4i). In short, to avoid 'failure', constituencies must have the technical capacity to deliver appealing products/services within available resources and in competitive time.

Alignment (4-4i) - Interacting technologies/constituencies

Commonly, technologies emerge in an organisational, industrial and market environment populated by other technologies. This dimension relates to the type of interaction and relations established with these other technologies in the pursuit of success. It also includes alignment between the technology and technical/market trends (see alignment 2-2i).

Table 2.7.I An overview of aspects of the "diamond of alignment" (Molina 1999a: 10)

A constituency-building process has two major paths to facilitate alignment. The first path is that the space for co-existence of different goals, encompassing interactions between collaboration and competition, except in the special case in which completely antagonistic goals destroy the entire process or lead to the withdrawal of at least one of the contending parties. The second path is that the changeable nature of goals and perceptions, potentially allowing for the generation of alignment where, initially, there was none (Molina 1995).

2.7.3 A critical assessment of the "sociotechnical constituencies" approach

This section aims to assess critically the potential of applicability of the "sociotechnical constituencies" approach (Molina 1990; 1993) to understanding of the processes of emergence and development of e-banking value creation and capabilities-building in Saudi Arabia. The section starts with a brief positioning of the "sociotechnical constituencies" approach (Molina 1990; 1993) in social

theory and a review of early “social theory” approaches stressing the interaction between social and technical factors during the development of technology. This is followed by (a) describing briefly some early approaches in social theory, (b) comparing the “sociotechnical constituencies” approach (Molina 1990; 1993) with such approaches, and (b) introducing a group of studies that have attempted to use the “sociotechnical constituencies” approach (Molina 1990; 1993). A justification to the potential applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) to understanding of the processes of emergence and development of e-banking value creation and capabilities-building in Saudi Arabia concludes the section.

2.7.3.1 The position of “sociotechnical constituencies” in social theory

A good work to start with is Russell and Williams (2002). These authors produced a glossary of a selection of key theoretical concepts to help not only researchers compare and contrast such concepts, but also guide external audiences unfamiliar with the different key concepts of the social theory. The glossary defines 44 concepts, indicates representative authors using each concept, provides a definition to each concept, and lists related concepts to the one being described. They pointed out that the choice between comparable concepts is a judgement about how each concept allows making sense of empirical material in a way consistent with other principles of explanations.

Russell and Williams (2002: 55) positioned the “sociotechnical constituencies” approach (Molina 1990; 1993) within the theoretical group of “complex, contingent, local dynamics of innovation processes for policy and intervention”. They suggested that work under this group has stressed the contingency and predictability of sociotechnical change as well as the plurality of actors involved. The process of alignment is an important issue in this work. The frameworks tend to stress the protracted process of alignment, the difficulty of achieving technological change, and the extent to which it is an accomplishment. In addition to the “sociotechnical constituencies” approach (Molina 1990; 1993), Russell and Williams (2002) identified the following key theoretical concepts as falling under this group as they are popular for analysing alignment: the notion of network (Freeman 1991), path dependence (e.g., Arthur 1989), network externalities (e.g., David 1986) and entrenchment (e.g., Collingridge 1980).

Russell and Williams (2002: 63) also identified a different theoretical group to the one above and called it “structure and constraint approaches”. The work under this group emerged during the 1980s with a focus on structure and constraint rather than dynamics and choice. Such work attempts to capture the regularities and patterning in technological development, and cognitive and institutional structures and mechanisms that produce them - that favour specific outcomes and exclude others.

Russell and Williams (2002) clustered the work under this group into three categories. The first category includes concepts that describe regularity in the development of technological devices or systems. Such concepts include trajectories, envelopes, avenues or corridors and product cycles. The

second category includes concepts that convey with varying emphases the social, political, legal, cultural or cognitive means by which those directions and constraints are produced and reproduced. These concepts stress the routine and rule-bound character of much technical work, and suggest that options are ruled out before they are conceived. Such concepts include paradigms, regimes, frames (Bijker 1995), traditions, and styles. The third category identifies elements of a frame or paradigm and includes concepts such as guiding principles, norms, roles, product standards, production routines, use practices, instrumentations, dominant problem definitions, do-able problems, focusing devices, guideposts, and modes of satisficing.

2.7.3.2 Brief review of early social theory approaches

This section describes briefly some early approaches in social theory using Williams and Edge (1996) as the main reference source. The first early approach is the social shaping of technology (SST). Williams and Edge (1996: 866) argued that “a variety of scholars, with differing concerns and intellectual traditions, find a meeting point in the SST research. They are united by an insistence that the “black-box” of technology must be opened, to allow the socio-economic patterns embedded in both the content of technologies and the processes of innovation to be exposed and analysed. The SST research could, it was hoped, identify opportunities to influence technological change and its social consequences, at an early stage - moments at which accountability and control could be exercised”. Williams and Edge (1996: 868) explained that the SST research investigates the ways in which social, institutional, economic, and cultural factors have shaped: (1) the direction as well as the rate of innovation, (2) the form of technology, the content of technological artefacts and practices, and (3) the outcomes of technological change for different groups in society.

Another early approach is the sociology of scientific knowledge (SSK). According to Williams and Edge (1996: 869), the SSK “consists of studying the development of a scientific field, and identifying points of ‘contingency’ or ‘interpretative flexibility’, where, at the time, ambiguities are present.” The approach has been extended toward the study of technological artefacts (Williams & Edge 1996). They have sought to identify instances where technologies could be designed in more than one way, with choices between different technical options, and to explain why one way of designing the artefact triumphed. This is rarely a simple “technical” issue, but is patterned and shaped by the particular “selection environment”: in other words, social factors enter into such explanations. Williams and Edge (1996: 870) argued that “SSK has often been taken ... to be synonymous with the SST approach”.

The third early approach is the social construction of technology (SCOT). According to Williams and Edge (1996: 870), the analysis from the SSK proceeds outwards, from the technology to the context shaping it. This approach has been presented as offering a “new sociology of technology”, summed up by the phrase social construction of technology (SCOT) (Pinch & Bijker 1984). According to Russel and Williams (2002), the SCOT brought insights from the sociology of scientific knowledge to bear

on technological development. Adopting constructivist principles from the SSK, the SCOT treated technological success and failure systematically, insisting on the same sort of explanation for both. It followed the process by which closure is achieved among "relevant social groups" between competing interpretations of the available technological options, so that a particular design becomes taken for granted as the essence of the technology (Bijker 1987; 1993; 1995; Bijker & Law 1992; Bijker et al. 1987). The SCOT approach tends to have difficulties in accounting for closure. The possibilities of interpretative flexibility (i.e. of "choice") seem endless," (Williams & Edge, 1996: 870).

The sociology of industrial organisations (SOIO) is another field of research under the umbrella of the social shaping of technology. According to Williams and Edge (1996: 870), the SOIO, in contrast to SCOT, has focused on an arena of technological change characterised by clear, and often conflicting, socio-economic interests. The starting point here is not a particular technological field, but a particular social context within which technical change takes place. The analysis proceeds "inwards": the social processes, interests, and goals typical of the context are identified, and attempts are then made to trace their influence on evolving technology.

One of the well-know early approaches in the social theory is the actor network theory (ANT). Indeed, the SCOT writers not only adopted constructivist principles from the SSK, but were also strongly influenced by actor network theory (ANT) (Williams & Edge 1996). The ANT, developed by Callon, Latour, Law, and others, is another example of theoretical approaches stressing the interaction of different social and technical factors in explaining the characteristics and results of innovation and technology implementation processes.

According to Russel and Williams (2002), ANT followed the strategies and actions of central actors as they attempt to marshal the resources necessary for the project, particularly by enrolling other actors and appropriating the right to speak for them. A technology was conceived as an emerging and increasing stabilised network of material and non-material elements. The nature of the project and the identities and interests of the actors involved are transformed as the network takes shape. However, "studies on ANT remain sceptical about the nature and influence of broader social and economic structures of power and interests, insisting that actors create the world anew (Latour, 1983, Latour, 1986, Latour, 1988), and implying that technologies (and social systems generally) are highly malleable to local actors," (Williams & Edge, 1996: 870).

Recall from the discussion on technology implementation that Leonard-Barton 1988: 252) sees implementation as "a dynamic process of mutual adaptation between the technology and its environment." In the same vein, Desanctis and Poole (1994: 125) suggested that the sociotechnical systems theory argues that the impacts of advanced information technologies depend on how well social and technology structures are jointly optimised; technology adoption is interpreted as a process of organisational change.

On a wider scale, at the level of an industry or society in general, this mutual adaptation can be seen in terms of changes to “technological frames” or transformations through an actor-network (Bijker 1995). Savory (2006) suggested that ANT stresses that the various stakeholders using a technology will each modify or hybridise knowledge as the technology is applied and re-applied. Hybridisation of technological knowledge is an inevitable and desirable process, without which, crossovers of technology to new domains would rarely occur.

One of the examples illustrating ANT is the design and implementation of Electronic Data Interchange (EDI). EDI relates to the conduct of business communications among computer systems of different organisations with the aim of exchanging business documentation (Emmelhainz 1993; Graham et al. 1995; Williams 1997). Graham et al. (1995) addressed the build-up process of EDI and the strategies followed among participants during the design and implementation processes. They pointed out that although EDI technology can be seen as being bounded by the extent of the trading community within which electronic transactions occur, the formation of such communities will involve a wider network of actors.

Accordingly, Graham et al. (1995) have seen that the build-up process of such networks includes not only potential users of EDI, but also representatives of telecommunications, consultancy, software suppliers, and employees of national and regional governments. These networks “are heterogeneous in so far as the system builder must grapple with all aspects of the technology; not just those which are viewed as ‘technical’, such as standards development, but also those which are ‘social, such as gaining the support of particular agencies or governments,” (Graham et al. 1995: 5).

2.7.3.3 Brief comparison between “sociotechnical constituencies” and other “social theory” approaches

This section presents a brief comparison between the “sociotechnical constituencies” approach (Molina 1990; 1993) and some of the key concepts discussed earlier. The ANT, according to Kinder (2003: 507), “avoids the pitfalls of systems theory (input-transformation-output), by focusing on social and technological outcomes in addition to the processes shaping these outcomes”. ANT has also analysed the means by which actors use stable entities, or inscribe their intentions into technologies, to obtain remote actions they require of other groups.

ANT proponents’ however, insist that the analysis should avoid prior theorisations of the social setting and of the interests and power of actors, dissolve distinctions of scale, and demonstrate the constitution of entities in the process of interaction. ANT has developed a distinctive vocabulary to describe these processes and distinguish its concepts (Akrich & Latour 1992; Bowker 1987; Callon 1991; Law 1992).

In ANT, the technological process involves the formation of a network through the enrolment of actors and the translation of their interests. The “sociotechnical constituencies” approach (Molina

1990; 1993) involves building an alliance of interests around a project at an intra- and inter-organisational level.

ANT is sometimes seen as an alternative to the “sociotechnical constituencies” approach (Molina 1990; 1993) in the analysis of how technological and social factors interact in networks to shape technologies and their implementation processes. The argument here is that ANT and the “constituencies” are not alternative approaches. Rather they suit different purposes. While the ANT is particularly suited to networks which are looser in the sense of being less directed towards a designated outcome, the “constituencies approach” is more suitable to analysing the processes of innovation where a particular outcome is privileged (Kinder 2003).

Although both the ANT and the “sociotechnical constituencies” approach (Molina 1990; 1993) provide insights about change processes, Gilbert et al. (2001) have argued that systematic efforts using concepts such as the ANT or the “constituencies” approach, have provided initial, if rather static analyses, but do not allow one to study and understand the dynamic behaviour of innovation networks. This judgement however is based on early work (e.g., Molina 1993) and does not make reference to Molina’s process of sociotechnical alignment (Molina 1995).

The process of alignment also can be seen from the view of SCOT framework. Here, the process of alignment is the process of achieving closure among relevant social groups over the meaning of an artefact. While the analysis of closure is fruitful, it is widely accepted this is only one mechanism by which directions of development might be settled. Consensus over the meaning and value of a technology is unlikely. It will retain different meanings for the groups which use it or are affected by it (McLaughlin et al. 1999; Russel & Williams 2002). Disco and van der Meulen (1998) stress the variety of modes of coordination involved in establishing and maintaining such alignments.

Next to social shaping, according to Geels (2004), there is also technical shaping, something that ANT finds difficult to elaborate. Molina (1999a) suggested that technical possibilities and scientific laws constrain the degree to which interpretations can be made. He also developed a taxonomy of technologies to deal with the role of the technical in processes of constituency-building.

Ultimately, all these analyses tend to stress the protracted process of alignment, the difficulty of achieving technological change, and the extent to which it is an accomplishment (Badham et al. 1997; Russel & Williams 2002). They can also provide insights into the limits of change in existing alignments and the way in which these may need to be broken up to reorient a field (Elzen et al. 1996). As we shall see, however, the “sociotechnical constituencies” approach (Molina 1990; 1993) is distinctive in the fact that it offers specific tools to structure the analysis of technological innovation and implementation processes.

2.7.3.4 Brief review of the use of the use of the “sociotechnical constituencies” approach

Various studies have attempted to use the “sociotechnical constituencies” approach (Molina 1990; 1993). The following paragraphs introduce a selection without the intention to diminish the value of other studies. Simply those selected are sufficient to illustrate the points raised by the use of the “sociotechnical constituencies” approach (Molina 1990; 1993).

Kinder (2002b) provided Table 2.7.II that contains studies using the “sociotechnical constituencies” approach (Molina 1990; 1993). According to Kinder (2002b), these studies contain common threads necessary for success in all public service ICT innovations.

PA ICT innovation study	Alignment 1 to 1i Governance	Alignment 2 to 2i Target constituents, perceptions & pursuits	Alignment 3 to 3i Nature of target problem	Alignment 4 to 4i Interacting technologies
Smart cards and Internet-based e-commerce (Molina 1998)	ICTs create mode value when accompanied by new work structures.	Services users are less likely to get lost in a system that automatically tracks their progress.	The most complicated the information flows, the more likely ICTs are to help its transmission.	ICTs can give service users choices over time and pace of interactions beyond those previously existing.
Piloting perinatal telemedicine (Kinder et al. 1999)	New ways of working necessitate staff training, new roles and re-negotiated mutual confidence & trust	ICTs can empower. Professionals can be liberated, working more with their expertise.	Clear working methods and goals are necessary if ICTs are to add value rather than compound difficulties.	Aligning mature and power technologies reduces risk and failure.
Economic cluster-building (Kinder & Molina 1999)	New governances must align with existing governances; they cannot grow in isolation.	Enrolling constituents does not mean that in the early stages they share the constituency’s vision.	A new way of solving an old problem is usually recognised as such by those with the problem.	Complementarily is preferable to antagonistic competition between technologies.
Rome ICT Clusters (Molina & Michilli 1999)	Effective new governances are multi-layered, combining multiple partners.	Alignment intra and inter-organisational players is crucial to successful constituency building.	Longer term solutions often combine with short-term and opportunistic actions.	Forgetting old ways of working is a difficult element of creating new ways of working.
Joined-up-government (Kinder 2000)	Alignment rules, roles and structures between & within organisations is crucial.	Goals may differ, if all are respected, newly aligned goals can be negotiated.	Users vary in how and what ICTs give usability - new systems must respect this.	Misalignments in inherited hardware and information systems can be overcome.

Table 2.7.II PAs and successful ICT innovations showing key alignments (Kinder 2002b: 389)

In turn, Klaes (1997) used the “sociotechnical constituencies” approach (Molina 1990; 1993) to foster dialogue between sociological approaches to the study of innovation and microeconomic theory. The aim was to demonstrate an interdisciplinary approach consisting of the “sociotechnical constituencies” approach (Molina 1990; 1993) and a game theoretical analysis of competitive alignment between the dominant constituents of technological innovation in the market for recorded music in Britain.

Kinder (1999) used the “sociotechnical constituencies” approach (Molina 1990; 1993) to structure an assessment of recent debates around an economic development strategy for West Lothian, Scotland which challenge some of the original formulation of absorptive capacity, and update other aspects, contributing to current theoretical, and policy debate on learning regions. Molina and Gregson (2002) used the “sociotechnical constituencies” approach (Molina 1990; 1993) to analyse the implementation of an evolutionary evaluation methodology used as a learning instrument in the evolution of Connect Scotland, a major enterprise support network in the UK.

Kinder and Molina (1999) examined the potential for a sustainable multimedia capability in Scotland, through an understanding and characterisation of the depth, breath, dynamism and purpose of a possible multimedia clustering process. Kinder and Molina (1999) used the “sociotechnical constituencies” approach (Molina 1990; 1993) to analyse networking within a cluster or, more generally, the nature, state of development and dynamism of a cluster. The empirical ground was the Scottish’s multimedia cluster. Scottish Enterprise (SE), the industrial agency of Scotland, was considering the development of multimedia clustering as one of its strategic lines of action. The case surrounds the issue that multimedia is rather recent and the challenge is more how to stimulate multimedia clustering. Kinder and Molina (1999: 271) argued that “there is a spectrum of inter-organisational relations whose quality is differentiated by the depth of the relationship (i.e. how well the knowledge flows and common purposes interrelating organisations are integrated)”.

In turn, Kinder (2000) applied the “sociotechnical constituencies” approach (Molina 1990; 1993) with the associated “diamond of alignment” (Molina 1995) to analyse a case study on the introduction of smart housing in West Lothian, Scotland. Within “sociotechnical constituencies” approach, Kinder (2000) employed Nicoll (1995)’s contextual usability conceptual approaches to deeply explore the alignment of user requirements and provider parameters. The process examined in this research is one of translating general ideas of smart housing, into a successful implementation meeting the variegated goals of an innovating constituency, their development partners, the users of residential services, and their formal and informal carers. Accordingly, Kinder (2000) highlighted the value of the “constituencies” approach (Molina 1990; 1993) as a conceptual instrument able to guide the design and innovation of mature technology into complex circumstances.

In addition, Kinder (2002a) integrated the “sociotechnical constituencies” approach (Molina 1990; 1993) with the concept and ingredients of business plan such as intermediation, re-intermediation, virtual supply chains and Internet communities to analysing three case studies: EQL, an e-learning software development company specialised in developing learning solutions in accounting, finance and business related disciplines, EmFinance, an e-commerce financial services company, and Real Time Engineering (RTE), a software and IT systems company. Kinder (2002a) argued that combining the “sociotechnical constituencies” approach (Molina 1990; 1993) with the concept and ingredients of business plan lays the foundations for a dynamic approach to business models for networked SMEs using e-commerce. This approach is termed evolutionary business planning. One of the values of Kinder (2002a)’s work was the illustration of the possibility of business modelling in the evolutionary and holistic manner.

In a further study, Kinder (2002b) used the “sociotechnical constituencies” approach (Molina 1990; 1993) to analysing the introduction of computers into secondary classrooms in Rome, Italy and West Lothian, Scotland from a technology innovation perspective. He argued that the introduction of networked technologies into the multiple-goal learning environment of schools cannot be understood in terms of predetermined recipes. Rather, these are processes of sociotechnical alignment informed by particular knowledge domains and flows of knowledge, using particular instructional techniques embedded in software and curricula design and supported by specific mixes of technology.

Concerned with the development of sustainable industrial capabilities, Molina and Kinder (2002) integrated the fundamental insights of industrial clusters (e.g., Porter 1990) and national systems of innovation (NSI) approaches (e.g., Lundvall 1992, Nelson 1993) with insights of the “sociotechnical constituencies” approach (Molina 1990; 1993) to analyse the depth and sustainability of Scotland’s electronics clustering experience. Molina and Kinder (2002) show that many of the elements of the NSI/cluster diamonds are present in the “diamond of alignment” (Molina 1995), and the latter’s layered approach permits their systematic macro-micro decomposition from industrial/cluster capabilities to technological activities inside the organisation.

Finally, Howells et al. (1993: 89) looked at the case study on the design and implementation of the EFTPOS network at the UK discussed earlier through the lens of the “sociotechnical constituencies” approach (Molina 1990; 1993). Howells et al. (1993: 89) suggested that there was a sociotechnical constituency that managed the design and implementation of the EFTPOS network. The core of the problems was “the definition and agreement on the needs of the groups in the [sociotechnical] constituency and their management, so that a single configuration that meets many of these needs can be implemented,” (Howells et al. 1993: 89). The process of implementation was “a major technological project which required the skilful building of an alliance between banks, retailers, and suppliers,” (Howells et al. 1993: 89). However, the key relationship in this sociotechnical constituency “was a disaster. It is difficult to imagine how it could have been hostile or more damaging to the

process of implementation and its influence is shadowed only by the interbank, competitive manoeuvrings,” (Howells et al. 1993: 89).

As new technology spreads throughout the organisation, a social environment is created for the emergence of normative and value consensus. The widespread introduction of a new technology within an organisation not only signals the legitimacy of the technology, but also leads to the development of an infrastructure to support the technology, which further legitimises its existence (Goodman & Griffith 1991). According to Howells and Hine (1993: 220c), the issues of competition, cooperation, or both still exist, suggesting a need for an operational strategy that can balance between the different norms of competition and cooperation. Such strategy would suit the need of banks only if it the technological options and their implications are understood by the individual banks.

The banks admit they learned a great deal from the EFTPOS experience, in particular, about how to deal with retailers and how to behave competitively. “We would say that they should focus on managing the technology within the sociotechnical constituency; this requires the development of an integrated understanding of organisational, competitive, and technical issues related to a particular network technology,” (Howells & Hine 1993c: 220).

All in all, the work just reviewed has demonstrated the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) in highlighting practical issues and choices facing policy makers and implementers in terms of the alignments necessary for the deployment of innovation. However, the work utilising the “sociotechnical constituencies” approach (Molina 1990; 1993) has been primarily concerned with its strengths in dealing with processes of technology innovation and implementation, and has not sought to identify weaknesses in the approach or its applicability.

For instance, as seen earlier, Gilbert et al. (2001) argued that systematic efforts using concepts such as ANT (Callon 1986; Latour 1988) and the “sociotechnical constituencies” approach (Molina 1990; 1993) do not allow one to study and understand the dynamic behaviour of innovation networks. This judgement however did not make reference to Molina’s (1995) work on the processes of sociotechnical alignment. This suggests the need for a more serious critical assessment of the approach and its application. Filling such gap in the literature is one of the aims of this thesis. It will test the applicability of the approach to the understanding of technology implementation, in general, and e-banking value creation and capability-building, in particular, through its application to the analysis of a range of case studies of e-banking in Saudi Arabia. The results of this assessment will be provided in the conclusion chapter of this thesis.

2.7.3.5 Justification for this thesis' use of the sociotechnical constituencies approach

This section provides the reasons for this thesis's use of the "sociotechnical constituencies" approach (Molina 1990; 1993) in the understanding of the processes of emergence and development of e-banking value creation and capabilities-building in Saudi Arabia.

The first reason is that the "sociotechnical constituencies" (Molina 1990; 1993) approach has been successfully used in a variety of innovation and implementation studies by both Molina and other authors. As said earlier, it has been found particularly useful for systematically analysing the interaction of different social and technological factors, for instance, due to its suitability in analysing the processes of implementation where a particular outcome is privileged (Kinder & Lancaster 2001).

Also, the "sociotechnical constituencies" approach (Molina 1990; 1993) does not give prominence to any particular level of analysis, distancing itself from methodological reductionism or holism (Klaes 1997). The "sociotechnical constituencies" approach (Molina 1990; 1993) acts as a conceptual instrument for the understanding and guidance of processes of innovation and implementation (Kinder 2000), making it an analytical tool appropriate for understanding e-banking implementation and dynamic capability-building. This differentiates the "sociotechnical constituencies" approach (Molina 1990; 1993) from the ANT approach, in the same way as it does the "sociotechnical constituencies" approach (Molina 1990; 1993) elaboration of the role of the technical dimension of constituency-building processes.

These characteristics seem to provide the "sociotechnical constituencies" approach (Molina 1990; 1993) with the processual analytical capability necessary to deal with the emergence and development of e-banking in Saudi Arabia. In this respect, the "sociotechnical constituencies" approach (Molina 1990; 1993) complements many insights from the literature review on value creation and capability-building perspectives, implementation process, and "social theory" frameworks, which identify value-creation and capability-building as complex technological and organisational processes.

The second reason, as anticipated already, is that the "sociotechnical constituencies" approach (Molina 1990; 1993) is distinctive in the fact that it offers specific tools to structure the comparative analysis and evaluation of processes of technological innovation and value-creation strategies. These tools are the "diamond of alignment" (Molina 1995), "alignment web" (Molina 2003), and "dynamic strategy mapping" (DSM) (Molina 2005), which help to organise the way of thinking about sociotechnical processes as well as the structure of the case studies. They also help to present in a consistent visual way the state of alignment harmony of the value creation and capability-building processes. Such visual capability allows an immediate understanding and communication of the strengths and weaknesses of specific value creation and capability-building process; highlighting those strategic areas requiring greater attention to secure the success of the constituency-building process.

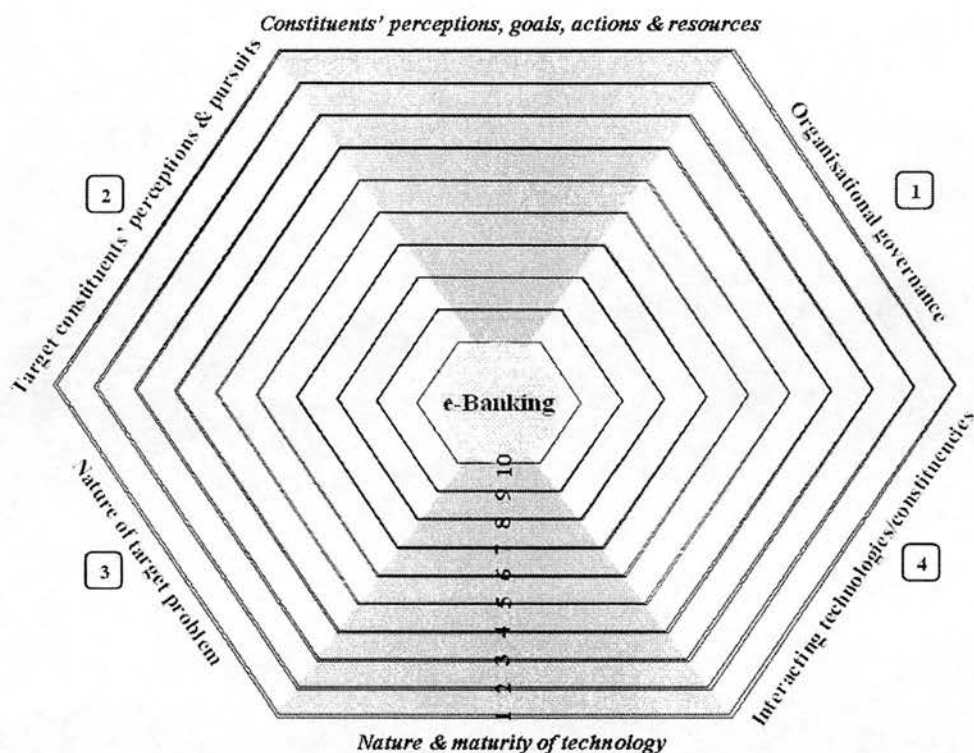
The last part of this chapter introduces the conceptual instruments of “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005) that give the “sociotechnical constituencies” approach (Molina 1990; 1993) a distinctive advantage in dealing with problems such as the emergence and development of e-banking. As said earlier, however, this thesis will test the potential of these instruments in the analytical and comparative treatment of the concrete e-banking experiences of Saudi Arabia.

2.7.4 Alignment web

In order to increase the understanding of e-banking implementation and dynamic capabilities-building, this section goes to a deeper level of specificity through discussing the “alignment web”¹⁴ (Molina 2003), a conceptual tool based on the “diamond of alignment” (Molina 1995), (see Figure 2.7.III). The “alignment web” (Molina 2003) helps to visualise the alignment gap during the e-banking constituency-building process. It aims to provide a detailed (quantitative) assessment of the current state of the process of sociotechnical alignment for a constituency. The “diamond of alignment” (Molina 1995) has been positioned into a “spider web”. Each one of dimensions 1, 2, 3 and 4 interacting with the “constituency” (dimensions I and II) in the e-banking development process enables the identification of a range of aspects with distinctive influence in the success of the alignment process.

Figure 2.7.III also lists the range of aspects with distinctive influence in the success of the alignment process. Such aspects can be used to focus the enquiry and assessment of the overall constituency-building process. Each aspect has been given a marking from 1 to 10, depending on the strength of the state of alignment (e.g., mark 1 indicates strong alignment while mark 10 indicates no-alignment). This was followed by averaging the marks of the aspects of each dimension.

¹⁴ This section relies heavily on Molina (2003).



Main dimension	Sub-dimension	Mark
Alignment (1-1i) – Organisational governance	<ul style="list-style-type: none"> • Flat decision-making structure • Rewards for ICT-based innovators • Encouragement to new ways of work • Developers' collaboration and teams • Assessment appropriate to new banking methods • Customers' participation in development 	
		<i>Average</i>
Alignment (2-2i) - Target constituents' perceptions and pursuits	<ul style="list-style-type: none"> • Target developers • Target customers • CEO • Technical personnel • Administrative personnel • Executive management 	
		<i>Average</i>
Alignment (3-3i) - Nature of target problem	<ul style="list-style-type: none"> • Well inside expertise/capabilities of constituency • Very important to bank • Highly motivating to leaders/innovators • Very important to banks' developers and customers • Well inside space and time resources available • Well inside financial/material resources available 	
		<i>Average</i>
Alignment (4-4i) - Interacting technologies/constituencies	<ul style="list-style-type: none"> • Easy technical integration between new and existing legacy system • Easy with displacement of obsolete practices • High presence of required complementary technologies • High presence of useful complementary technologies • Low opposition from competing ICT-based system • Effective mechanisms for socialising new mix of technologies 	
		<i>Average</i>

Figure 2.7.III Alignment web (Molina 2003: 15-16 & 38-40, combined & modified)

Next I introduce the “dynamic strategy mapping” (DSM) (Molina 2005), a complementary tool that permits a deeper quantitative assessment of the strategic priorities of the Saudi e-banking constituencies.

2.7.5 Dynamic strategy mapping

This section presents the “dynamic strategy mapping” (DSM) (Molina 2005)¹⁵, a tool for mapping and supporting strategies of processes of innovation or development of product and services. This tool enables the identification of the combination of specific ingredients making up the value-creation strategies of different constituency-building processes. It also enables an assessment of the different priorities given to these specific ingredients in the value-creation strategies. This detailed assessment is important because the broad understanding of strategy approaches reveals directions but not the many specific aspects that make up the broad strategy in each particular e-banking constituency. A wide range of sources have been consulted during the construction of the “dynamic strategy mapping” (DSM) (Molina 2005).

The “dynamic strategy mapping” (DSM) (Molina 2005) distinguishes multiple strategic ingredients, in clustered multi-level dimensions, to facilitate a holistic and evolutionary understanding of value-creation strategies in ICT-based innovation processes. The “dynamic strategy mapping” (DSM) (Molina 2005) seeks to stimulate a systematic approach to multiple clustered aspects that in their totality help reveal the state of product/service constituency-building strategies pursued by organisations. Most importantly this exercise can be conducted as often as deemed necessary, thus helping to generate snapshots of the evolution of the “strategy” in the constituency-building process. The result is the availability of a dynamic view of the strategy process and, consequently, the opportunity to take well-informed steps that enhance the consistency and effectiveness of an evolving strategy.

Figure 2.7.IV shows the major dimensions making up the first layer of strategy-mapping for a constituency’s product or service. Table 2.7.III describes the content of each of these dimensions. The plus signs following each of the four dimensions indicate that each of them contain further layers of strategy-mapping elements.

¹⁵ This section relies heavily on Molina (2005).

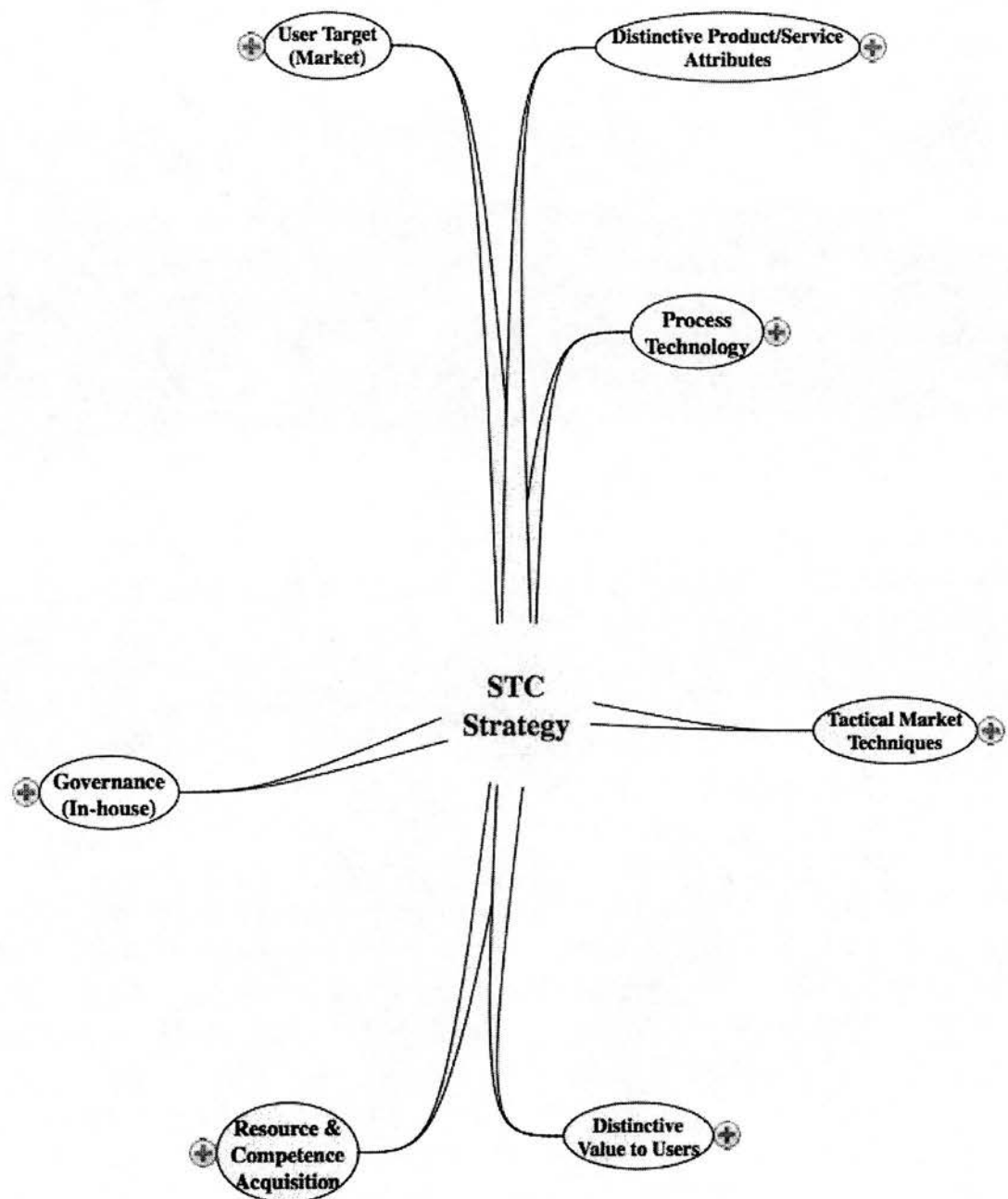


Figure 2.7.IV Dimensions of first layer of strategy-mapping for product/service (Molina 2005: 7)

Dimension	Description
Distinctive Product/Service Attributes	Features that give competitive advantage to the product/service
Process Technology	Technology used to realise the creation process
Tactical Techniques	Possible tactical approaches to try to ensure successful diffusion of product/service among target user population, including defensive and offensive approaches to maintain existing gains and/or to secure new gains
Distinctive Value to Users	Possible dimensions of distinctive value offered by product/service (one or multiple) to users
Resource and Competence Acquisition	Approaches followed by the constituency to acquire resources and competences or capabilities for the creation process
Governance (In-house)	Written and unwritten “rules” governing the behaviour and practices of individuals and groups in the creation process
User (Market) Target	Sectors or segments of the population intended to become users of the product/service. Present and desired situation

Table 2.7.III Dimensions of first layer of strategy-mapping for product/service (Molina 2005: 7-8)

Figure 2.7.V and Table 2.7.IV take the dimension “distinctive product/service attributes” and expands it into more detailed layers that show six sub-dimensions with their corresponding clusters of more sub-dimensions or elements. The entire set offers a menu of alternative possibilities for mapping a constituency’s existing or future strategy from the point of view of a product/service’s distinctive attributes already created or to be created.

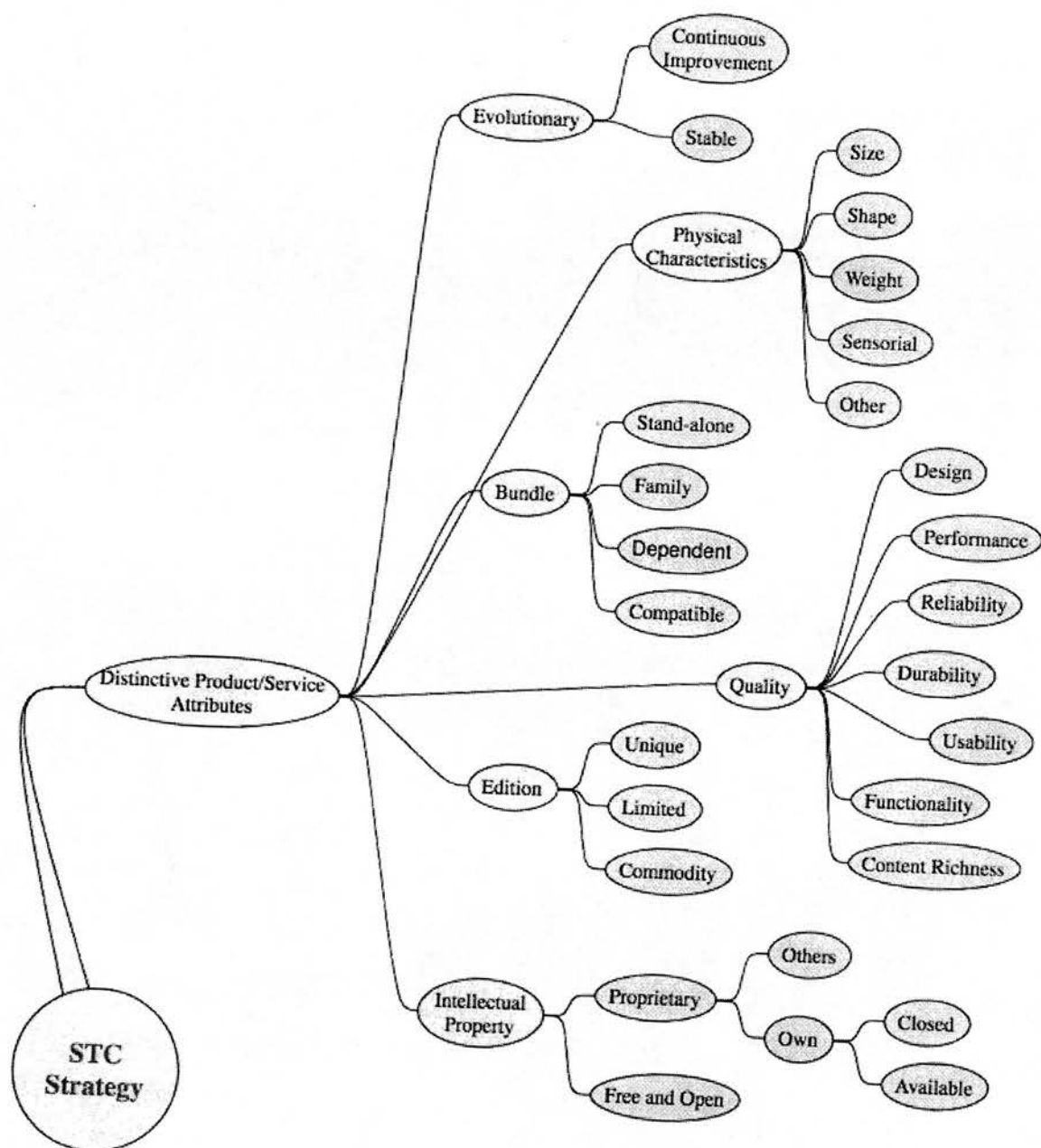


Figure 2.7.V Possible distinctive attributes of products/services (Molina 2005: 8)

Dimension	Description
Physical	Size
Characteristics	Weight
	Shape
	Sensorial (e.g., visual)
	Other
Quality	Design: look and feel
	Performance: e.g., speed, power
	Reliability: performance without or minimal break downs
	Durability: long-lasting
	Usability: ease of use
	Functionality: single or multiple functions
	Content Richness: rich in information, resources and interactivity
Evolutionary	Stable: unchanged product/service
	Continuous improvement: in constant evolution with enhanced versions
Edition	Unique: exclusive
	Limited: rather small number
	Commodity: mass market
Bundle	Stand-alone: single independent product
	Family: platform with several related variants
	Dependent: depends on another product/service to deliver value (obligatory complementarily) (e.g., software)
	Compatible: work well with other products/services but does not depend on them (non-obligatory complementarily)
Intellectual	Proprietary
Property	Own
	Closed (not available to others)
	Available (e.g., licensable)
	Others (property of others)
	Free and Open (e.g., free and open source software)

Table 2.7.IV Possible distinctive attributes of products/services (Molina 2005: 9)

In similar fashion, Figure 2.7.VI and Table 2.7.V take the dimension “Process Technology” and expands it into four sub-dimensions (“competitive character,” “intellectual property,” “cost” and “techniques”) with their corresponding clusters of more sub-dimensions or elements. This time the menu of alternative possibilities concerns a constituency’s existing or future strategy from the point of view of the process technology used, or to be used, for product/service creation and market diffusion.

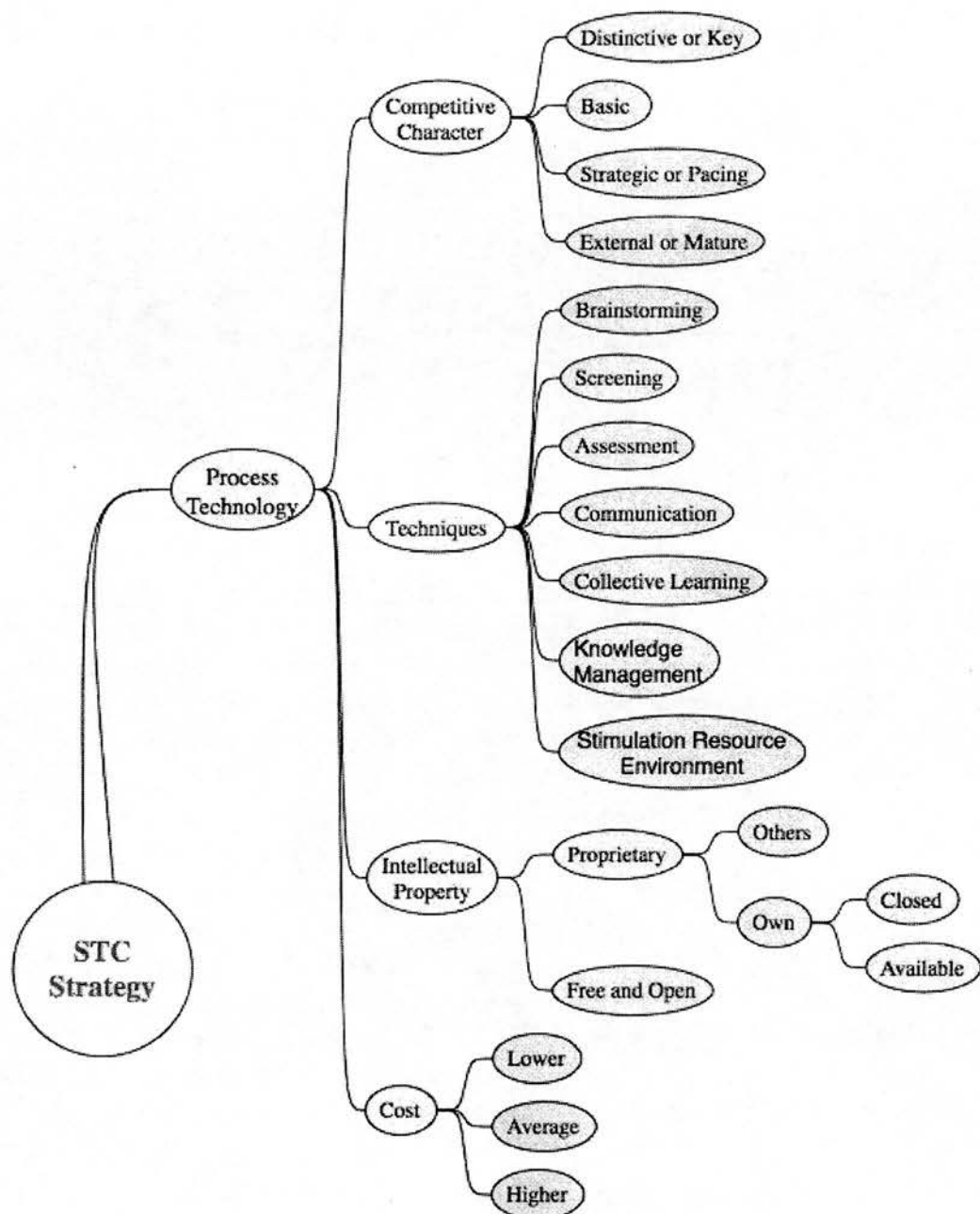


Figure 2.7.VI Menu of possibilities for process technologies in sociotechnical constituency strategy (Molina 2005: 10)

Dimension	Description
Competitive Character	Distinctive or key: technology giving the organisation a distinctive source of competitive advantage in creation Basic or enabling: technologies fundamental to an organisation's operation but not a source of competitive advantage since they are available to all Strategic or pacing: technology in early stages of development but with good potential to evolve into a distinctive source of competitive advantage Mature external: older technologies available for sale and supplied by other companies
Intellectual Property	Proprietary Others (property of others) Own Closed (not available to others) Available (e.g., licensable) Free and Open (e.g., free and open source software)
Cost	Lower Average Higher
Techniques	Brainstorming: systematic idea generation, including critical problem identification Screening: systematic sifting and grouping of ideas Assessment: evaluation and prioritisation of ideas Communication: presentation and communication of ideas Collective learning: sharing and appropriation of ideas among people in the organisation Knowledge management: systematic gathering, warehousing, mapping, accessing, sharing and stimulating diffusion, learning and use of information, codified and tacit knowledge for action as well as for the generation of new knowledge Stimulation resource environment: Rich environment of all sorts of multimedia resources useful to stimulate creativity, including brain-teasers, audio-visual libraries, activities, challenges, etc.

Table 2.7.V Menu of possibilities for process technology (Molina 2005: 9-10)

Figure 2.7.VII and Table 2.7.VI take the dimension "Tactical Market Techniques" and expands it into 10 sub-dimensions with their corresponding clusters of sub-dimensions or elements. This time the menu of alternative possibilities concerns a constituency's possible tactical approaches to try to ensure the successful market diffusion of its product/service among the target user population/s.

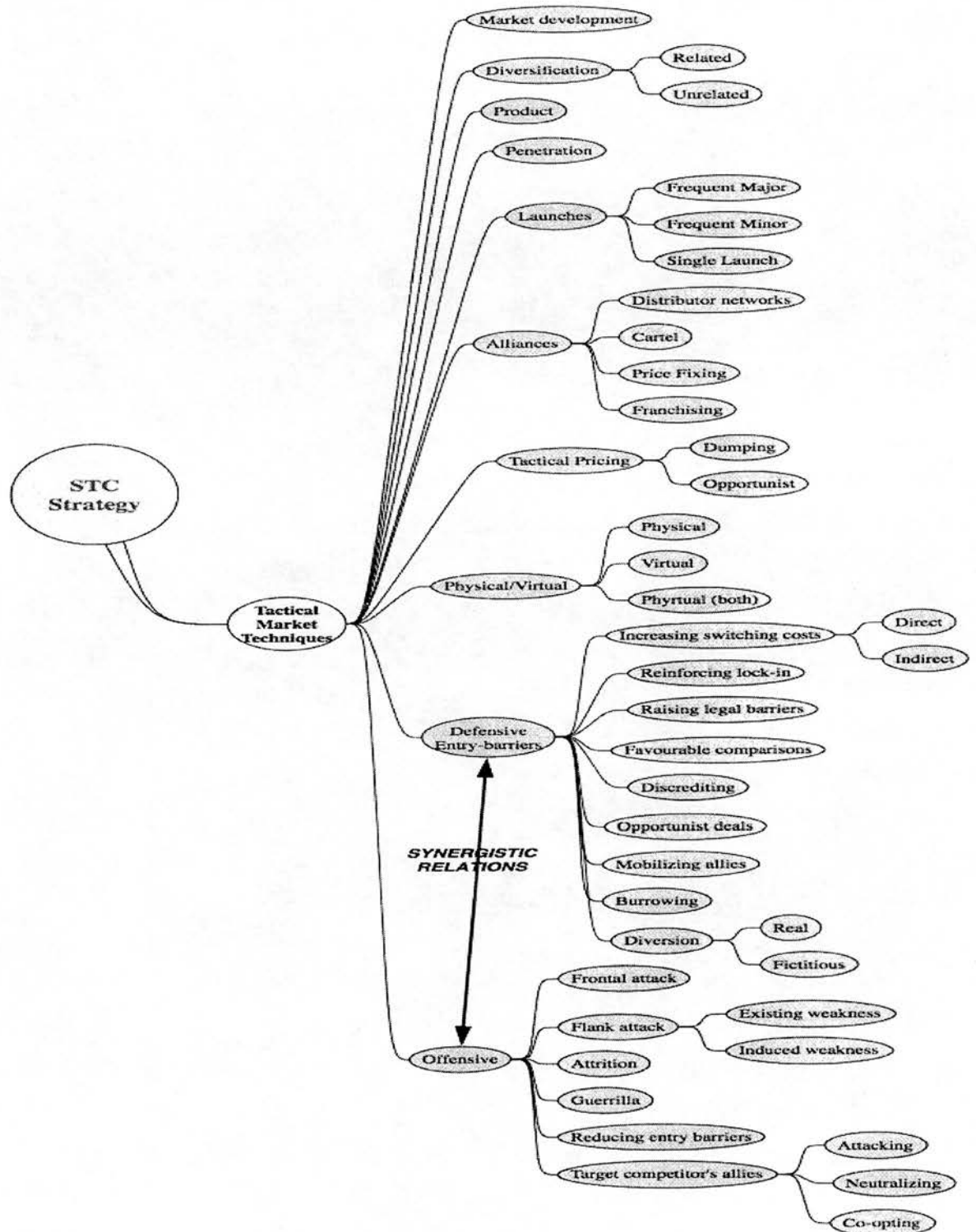


Figure 2.7.VII Menu of possibilities of “tactical techniques” for market diffusion (Molina 2005:

11)

Dimension	Description	
Market development	Targeting same product at new markets. It includes demand-reinivation for mature products	
Diversification	Targeting different products at different markets	Related: Different products are related Unrelated: Different products are unrelated
Product Penetration	Targeting new products at the same market Targeting the same product/service more intensely at the same market. It includes demand-reinivation for mature products	
Launches	Frequency of product/service launches due to major or minor advances	Frequent major Frequent minor Single launch
Alliances	Tacit or explicit (e.g., contractual) arrangements with other organisations relating to diffusion of product/service	External distributor network Cartel Price-fixing Franchising
Tactical Pricing	Temporary or variable prices	Dumping: at a loss Opportunist: different prices for different customers depending on competitive situation
Physical/Virtual	Operating in the physical and/or internet worlds	Physical Virtual: internet alone Phyrtual: both world simultaneously
Defensive	Making it difficult for potential substitutes to enter and gain market share by fortifying entry barriers and applying other defensive tactics. See also offensive tactics below.	Increase switching costs by enhancing direct or indirect desirability. Direct: increase value for money by increasing value or reducing price or both Indirect: VIP treatments, supporting causes dear to customers (corporate social responsibility) Promote, reinforce lock-in by both increasing bundling, establishing long-term contracts, or, preventing compatibility of potential substitute Raising legal barriers: Use patents and copyrights to mount legal challenges that will drain the potential substitute's resources Promote and disseminate favourable comparisons and prevent or discredit unfavourable comparisons. Shift comparisons to more favourable grounds Discredit reputation of potential substitute Opportunist deals: Flexible offers and deals depending on users and competitive circumstances

Offensive	Possible tactical approaches to try to secure new gains, and also to defend existing gains. Defensive tactics above also apply.	<p>Mobilise allies in any relevant sphere of life, for instance, government to introduce favourable rules (e.g., tariffs) by crying “unfair competition,” etc. Or, influential users to make favourable statements</p> <p>Diversion: Force competitor to lose focus</p> <p>Real: Launching actions in one area to scare or force competitors to divert resources and concentration from another</p> <p>Fictitious: Announce pretended actions and/or mis-inform</p> <p>Burrowing: Deepening and expanding promotional and advertising campaigns to reinforce branding</p> <p>Frontal attack: all out short-term confrontation to gain market share often in the form of a price war</p> <p>Flank attack: exploit weakness or vulnerable position of competitor by better value offer.</p> <p>Existing weakness: in response to a competitor’s existing market mis-alignment</p> <p>Induced weakness: creating competitor’s market mis-alignment through a new better value offer</p> <p>Attrition: Long-term campaign seeking gradual gains in market share</p> <p>Guerrilla: Rapid, surprising incursions particularly targeted to weak flanks of competitors</p> <p>Reducing entry barriers: Seek to weaken or erode entry barriers protecting incumbent competitor</p> <p>Target competitors’ allies seeking to weaken strength of alliance</p> <p>By attacking vulnerable competitors’ allies to create confusion</p> <p>By neutralising competitor’s allies away from existing alliance and into a neutral position</p> <p>By co-opting competitor’s allies away from existing alliance and into one’s own constituency</p>
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Table 2.7.VI Menu of possibilities of “tactical techniques” for market diffusion (Molina 2005: 12-13)

Figure 2.7.VIII and Table 2.7.VII illustrate a menu of possibilities regarding the “distinctive value to users” offered by a constituency’s product/service. Nine sub-dimensions are identified with their corresponding clusters of sub-dimensions or elements. The entire set helps to map a constituency’s existing or future strategy from the point of view of the distinctive (competitive) value offered to users.

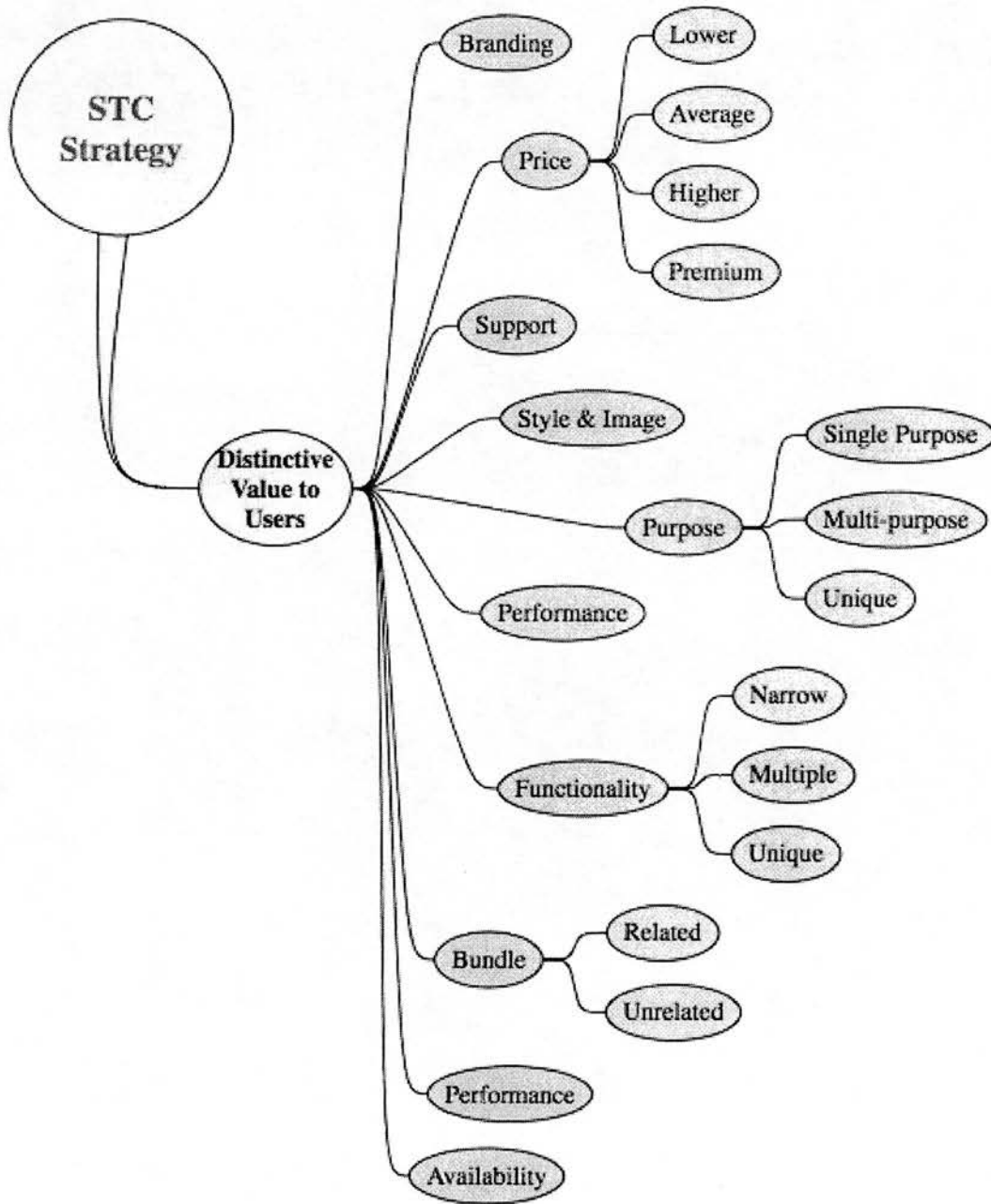


Figure 2.7.VIII Menu of “distinctive value to users” offered by products/services (Molina 2005: 14)

Dimension	Description	
Branding	Creation of highly distinctive image and identity for particular supplier of product/service	
Price	Positioning relative to competition and in consideration of appropriate profit margin, related, for instance, to profit maximisation or market-share growth	Lower Average Higher Premium: first-in-the-market price
Support	Excellence in customer support services, including information, training and after-sale maintenance, servicing and care	
Style and Image	Distinctive and appealing look and feel, including packaging	
Purpose	Specific area of activity served by product/service	Multi-purpose: several areas Single Purpose: single area Unique: exclusive
Functionality	Specific product/service capacities or functions enabling specific effect, results or actions	Narrow Multiple Unique
Bundle	Selling two or more products together	Related: compatible, family, complementary Unrelated: independent and not related
Performance	Degree of power or excellence with which the product/service executes its functions (e.g., speed, energy consumption, etc.)	
Availability	Ease and speed of access to product/service	

Table 2.7.VII Menu of “distinctive value” possibilities for products/services (Molina 2005: 13-14)

Figure 2.7.IX and Table 2.7.VIII take the dimension “Resource and Competence Acquisition” and expands it into 9 sub-dimensions with their corresponding clusters of sub-dimensions or elements. This time the menu of alternative possibilities concerns a constituency’s existing or future strategy to acquire resources and competences or capabilities for the creation and market diffusion of the constituency’s products/services.

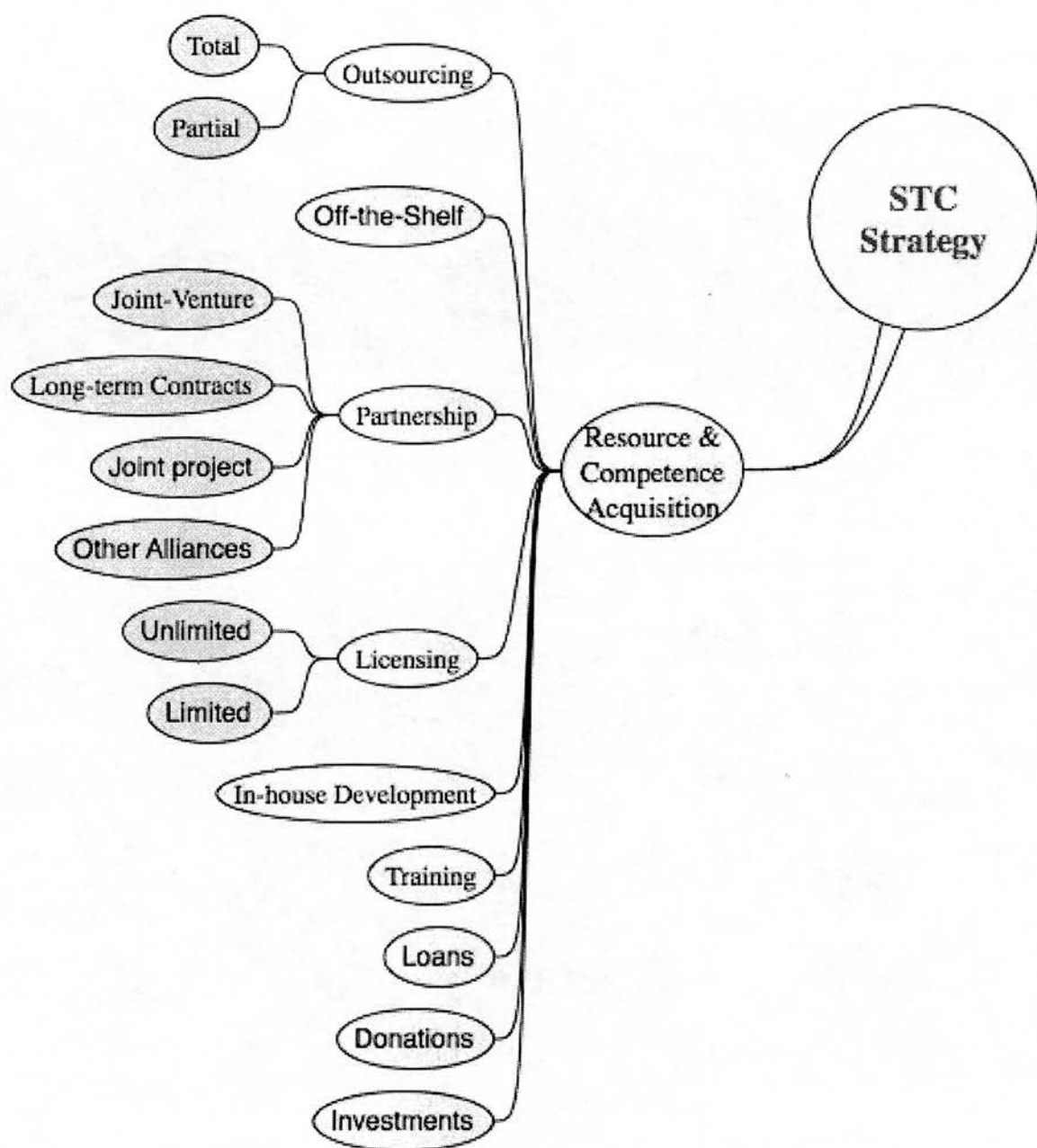


Figure 2.7.IX Menu of possibilities for resource and competence acquisition (Molina 2005: 15)

Dimension	Description	
Outsourcing	Contracting out to another organisation complete or partial creation of product/service, including	Total
Off-the-shelf	Buying creation resources available in the market	Partial
Partnership	Collaborative relations with other organisations in various forms	Joint venture: Separate jointly-owned organisation Long-term contracts: Long-term contractual relation with supplier Joint Project: Contractual collaboration with another organisation in single project Other alliances:
Licensing	Acquiring right to exploit another organisation's product/service through buying license	Unlimited: right to all upgradings and new versions in the future Limited: limited to one version and/or specified time
In-house development	Complete in-house learning and development of creation resources and competence using freely available knowledge	
Training	Attending training related to creation process skills	
Loans	Resources made available for a period of time, for instance, by a government agency or educational institution. In the case of financial resources, financial institutions would be involved.	
Donations	Resources donated by all kinds of donors, including individuals	
Investments	Funds or in-kind contributions made internally by the organisation or by external sources in exchange for future return	

Table 2.7.VIII Menu of possibilities for resource and competence acquisition (Molina 2005: 15-16)

Figure 2.7.X and Table 2.7.IX focus on "Governance (In-house)," one of the richest dimensions of STC strategy with four sub-dimensions and corresponding clusters of multiple sub-dimensions or elements. This time the menu of alternative possibilities concerns a constituency's existing or future strategy from the point of view of the "rules" governing the behaviour and practices of individuals and groups involved in the constituency's product/service.

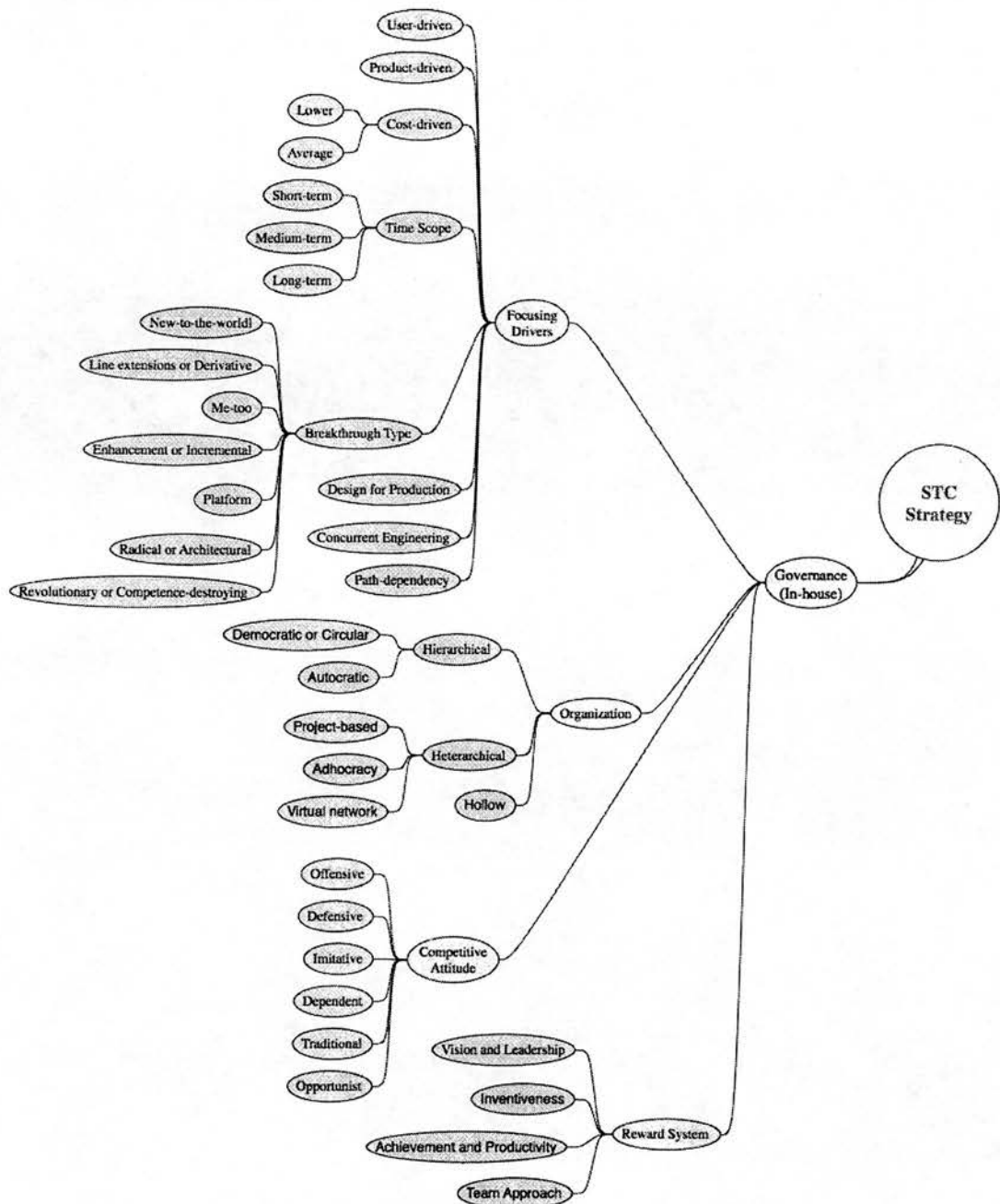


Figure 2.7.X Menu of possibilities for governance (In-house) (Molina 2005: 18)

Dimension	Description
Focusing drivers	<p>User-driven: Product/service is driven by user needs (e.g., market pull)</p> <p>Product/service driven: Emphasis is on supplying the product/service (product push) assuming a demand</p> <p>Cost driven: Product/service shaped primarily by cost considerations</p> <p>Time scope: envisaged life-cycle of the product/service in relation to market dynamics</p> <p>Breakthrough type: Nature and degree of innovativeness of product/service. Helps reveal magnitude and complexity of the competitive challenge</p>
	<p>Lower: lowest or lower cost compared with competing product/services</p> <p>Average: Not higher than average cost of competing products/services</p> <p>Short term</p> <p>Medium term</p> <p>Long-term</p> <p>New-to-the-world: entirely new to the organisation and to the market</p> <p>Line extension or Derivative: Products derived from other existing products.</p> <p>New to the market, not new to the organisation</p> <p>Me-too: new to the organisation, not new to the market</p> <p>Enhancement or Incremental: Minor changes in existing products</p> <p>Platform: Form the base for a product family</p> <p>Radical or Architectural: New technology that departs from established products and systems of production. Associated with the creation of new industries.</p> <p>Revolutionary or Competence-destroying: Applied to existing markets and customers, disrupting and rendering established technical and production competence obsolete.</p> <p>Design for production: product is created with reference to production capabilities of an organisation</p> <p>Simultaneous engineering: product/service is created with simultaneous inputs from production and marketing</p> <p>Path-dependency: product/service continues evolutionary path defined by previous versions</p>
Organisation	<p>Hierarchical: several layers of coordination. Present in virtually all complex systems</p>
	<p>Democratic (circular organisation): everybody participates in decision making (commonly through representation) and no one is the ultimate authority</p> <p>Autocratic: centralised authority with every layer exercising power over subordinate layers</p> <p>Project-based: specific projects of limited duration, undertaken by closely interacting teams in flexible coordination.</p> <p>Adhocracies: experts collaborating in non-routine modes, typically in multifunctional project teams. Little exercise of authority and specialists are valued for their expertise.</p> <p>Virtual networks: Horizontal</p>

coordination supported by the
information and communications
technologies (e.g., Linux and Apache).

Competitive attitude	Hollow: organisations that outsource most if not all the functions (e.g., broker)
	Offensive: Introducing products ahead of the competition (first mover)
	Defensive: Early adoption of technology
	Imitative: Follow the leader, not necessarily closely
	Dependent: Accepting a subordinate role to stronger firms
	Traditional: Remain with traditional often craft-based products
Reward system	Opportunistic: Identifying a new market opportunity for basically the same technology
	Vision and Leadership
	Incentiveness
	Achievement and Productivity
	Team approach

Table 2.7.IX Menu of possibilities for governance (In-house) (Molina 2005: 16-17)

Finally, Figure 2.7.XI and Table 2.7.X take the dimension “User (Market) Target” and expands it into 8 sub-dimensions with their corresponding clusters of sub-dimensions or elements. This time the menu of alternative possibilities concerns a constituency’s existing or future strategy regarding sectors or segments of the population intended to become users of the product/service.

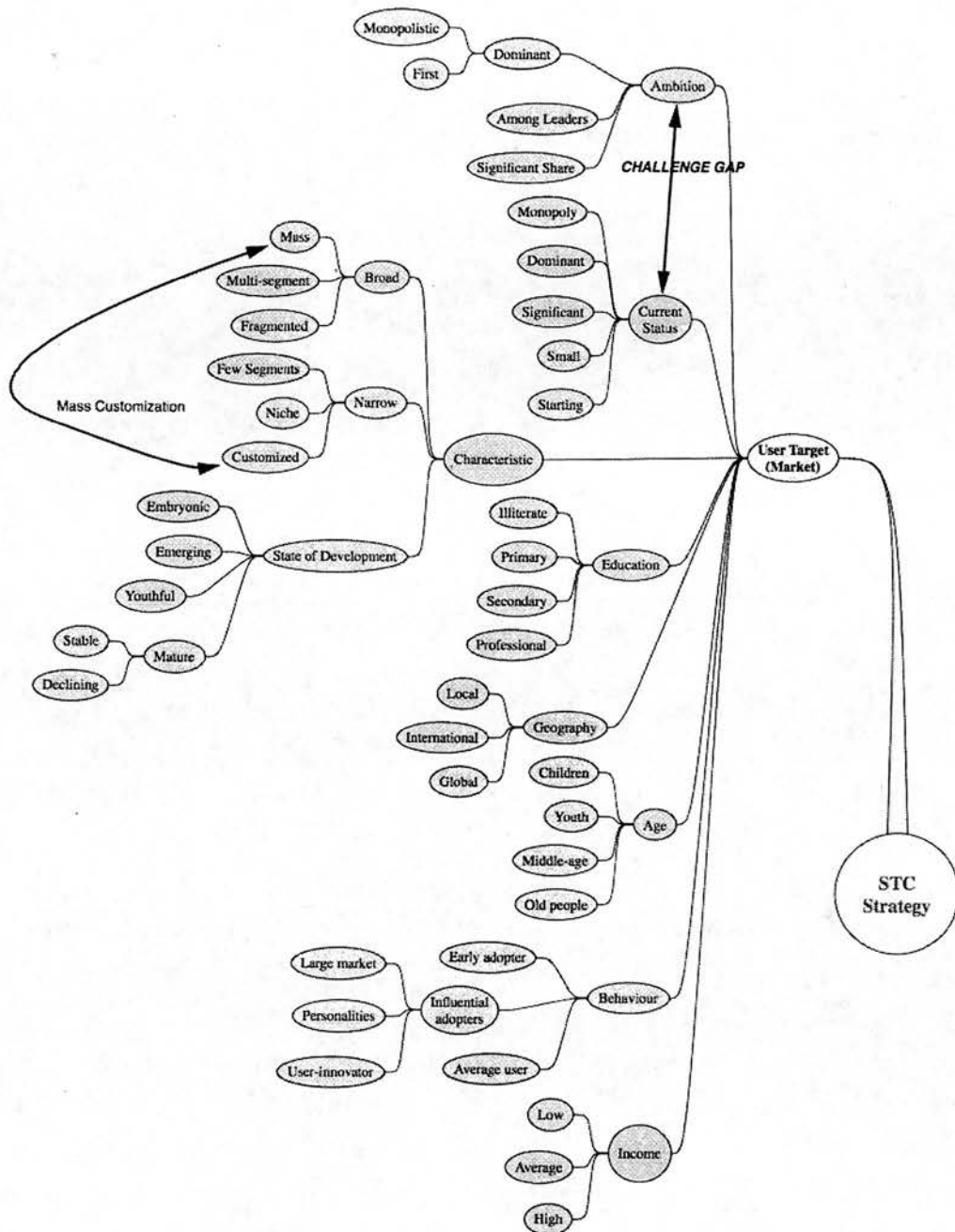


Figure 2.7.XI Menu of possibilities for “user (market) target” (Molina 2005: 19)

Dimension	Description		
Current status of product/service	Presence or share of product/service among target users	Monopoly Dominant Significant share Small share Starting	
Ambition for product/service	Desired or target status for product/service in the future	Dominant	Monopolistic: Overwhelming dominance First: first among other significant players Among leaders: One of a number of leading players Significant share: Noticeable presence but not among top product/services
Characteristic of target sectors	Characteristic of target (market) user population by extension, degree of segmentation and state of development	Broad Narrow State of Development	Mass: large commodity market Multi-segment: large market made up of distinctive segments Fragmented: market with many small niches Few segments: two or three segments Niche: Specialised single segment Customised: Single individuals Embryonic: in state of gestation as distinctive (market) grouping (e.g., space tourism) Emerging: in early stages of development as distinctive grouping. Not yet clearly defined Youthful: defined, dynamic, great deal of competition and competitors, low entry barriers Mature Stable: Clearly defined with consolidated competition Declining: losing momentum
By education	User population segmented by education	Illiterate Primary Secondary Professional	
By geography	User population segmented by geography	Local: user population in place of location (e.g., region, country) of product/service supplier International: user population in various countries Global: all the world	
By age	User population segmented by age	Children Youth Middle-age Old people	
By income	User population segmented by income	Low Average High	
By behaviour	User population segmented by positive role they can play in the diffusion of product/service	Early adopters: first adopters of new product/service Influential adopters: User-innovator: users actively contributing to improvement of product/service	Represent large market Personalities (famous)

Table 2.7.X Menu of possibilities for “user (market) target” (Molina 2005: 20)

Figure 2.7.XII brings all the dimensions of the “dynamic strategy mapping” (DSM) (Molina 2005) together (definitions as in Tables above).

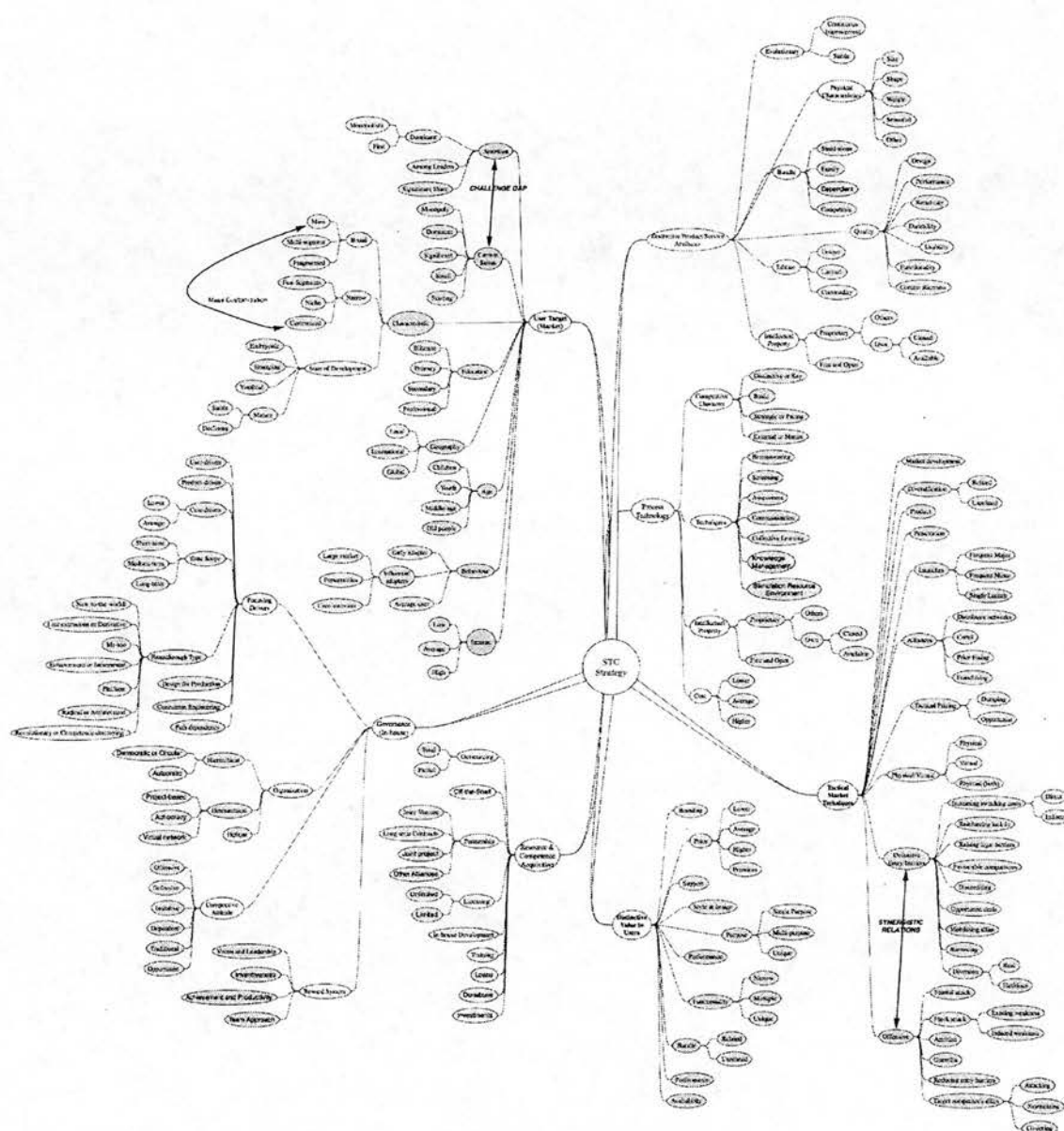


Figure 2.7.XII Integrated menu of possibilities for “dynamic strategy mapping” (DSM) of a constituency’s product/service (Molina 2005: 21)

As we have said, the development of e-banking can be treated as the rise of sociotechnical constituencies bringing together a wide range of technologies and institutions to deliver successful ICT-based banking services to customers. E-banking is a particular expression of these ICT-based services. For example, in their study that looked at strategies that leading business-to-consumer corporations harness the Internet to acquire new customers and increase their market share, Willcocks and Plant (2001) found that among 15 “leaders,” 25 “laggards” and 18 “medium-performing” organisations, leaders shared generic characteristics that distinguished them from other companies.

However, leaders also followed distinctive routes. Although they may have started with strategies based upon the idea of technology leadership, they migrated through interim stages to a market strategy. Only then were they capable of yielding sustainable, consistent e-business profits. Leaders were the fastest and most focused at moving from an “e” that stands for electronic to an “e” that represents earnings. The integrated “dynamic strategy mapping” (DSM) (Molina 2005) presented above is particularly appropriate for mapping the existing and/or future strategies of e-banking constituencies.

2.8 Conclusion

This chapter has looked at the emergence and evolution of e-banking with particular emphasis on how banks implement e-banking to build their capabilities as well as to create new value-creation strategies. It defined the term “e-banking” and looked briefly at the emergence, evolution, nature, products, and services of e-banking. The chapter also explored the focus of e-banking research and looked at the theoretical foundations of value creation and capabilities building in e-banking. It briefly discussed some views on value creation and capabilities building (i.e. Schumpeter 1942; Penrose 1959; Williamson 1975; Porter 1985; Teece et al. 1997; Dyer & Singh 1998; Hagel & Brown 2005). This was followed by a discussion on a group of emerging theoretical value creation frameworks in e-business (e.g., Amit & Zott 2001). It also looked at the applicability of these theories in the context of e-banking¹⁶.

The chapter also conducted a selective review of the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. It has clarified the term “implementation” and it looked briefly the relation between implementation, innovation and diffusion; the dynamics of the implementation process, and its different stages/phases. It also looked at the implementation challenges, success and failure, implementers’ responsibilities and broad implementation approaches, before ending with a brief review of empirical studies related

¹⁶ In addition to the empirical contribution to knowledge, this thesis attempted to make a theoretical contribution by seeking to integrate a number of concepts into a consistent conceptual instrument, entitled the “taxonomy of strategic approaches to constituency-building”. These concepts are: Schumpeter's theory of creative destruction (Schumpeter 1942), resource-based view of the firm (Penrose 1959), transaction costs economics (Williamson 1975), value-chain framework (Porter 1985), dynamic capabilities approach (Teece et al 1997), strategic network theory (e.g., Dyer & Singh 1998), accelerating capability building (Hagel & Brown 2005), generic and positioning strategies (Porter 1985; 1996), firm's innovation strategies (Freeman 1985; 1988), and process technology strategies (Ford 1988). The proposed purpose of the taxonomic instrument was to help provide an evolutionary view of the broad value-creation and capability-building strategies in e-banking in Saudi Arabia. However, the process of developing the instrument met with theoretical, methodological, and empirical limitations that prevented it from achieving a solid scientific result. The existing result may therefore be taking as a pointer in need of greater theoretical, methodological, and empirical work. Consequently, the claim that this thesis has made a theoretical contribution to knowledge has been entirely eliminated and the entire taxonomic effort as it stands today has been placed in Appendix V.

to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s. This review has revealed the complex nature of the processes of implementation of e-banking, with technological and organisational aspects deeply interacting in a process that shows a non-linear dynamics and a fundamentally sociotechnical nature.

The findings of the implementation literature provided an excellent background for the identification of structured process approaches useful to analyse in detail and comparatively the emergence and evolution of concrete e-banking experiences in Saudi Arabia. The thesis identified the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005), as the most suitable for its research problem, since it offers a more structured framework to organise the comparative study of concrete e-banking experiences. However, the aim of the thesis is not only to use the approach to reveal how banks build their e-banking capabilities and create new value strategies; it is also to test critically the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding e-banking value creation and capability-building.

Accordingly, the chapter provided a brief positioning of the “sociotechnical constituencies” approach (Molina 1990; 1993) in social theory and a review of early “social theory” approaches stressing the interaction between social and technical factors during the development of technology. On these basis, the chapter provided justifications for the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) to analysing the emergence and evolution of e-banking in Saudi Arabia, before proceeding to its final part: the introduction of the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005), the most recent conceptual instruments of the “sociotechnical constituency” approach (Molina 1990; 1993).

Chapter 3: Methodology

3.1 Introduction

This chapter discusses the research methodology and the path the research process will follow in conducting the empirical work and analysis. This process is emergent, as will be discussed in the coming sections. The chapter discusses the research strategy, the research design, the task of collecting data, and the task of analysing the data.

3.2 Research strategy

In doing social science research, surveys, histories, experiments, the analysis of archival information, and case studies represent different research strategies. Each strategy has its own logic, its own way of collecting and analysing evidence, and its own advantages and disadvantages. Researchers need to appreciate these differences in order to get the most out of using each strategy. Shavelson and Townes (2002) distinguished these different research strategies through arraying them hierarchically. They suggested that surveys and histories are suitable for the descriptive phase, experiments are suitable for doing explanatory or causal inquiries, and case studies are suitable for the exploratory phase of an investigation.

However, Yin (2003) questioned the hierarchical view and suggested that experiments with an exploratory purpose have certainly always existed, the development of causal explanations has long been a serious concern of historians, and case studies are far from being only an exploratory strategy. Therefore, Yin (2003: 5) suggested that:

“The type of research question posed, the extent of control a researcher has over actual behavioural events, and the degree of focus on contemporary as opposed to historical events are three conditions that distinguish the research strategies.”

Using Yin’s (2003) classification of different research strategies (see Table 3.2.I), because the focus of this research is on “how” and “why” question, this leaves us with three strategies: experiment, history, and case study. Moreover, since the research process will not be able to control behaviour, this leaves two strategies: history and case study. Finally, because the research needs to focus on a contemporary event, this leaves only the case study strategy. Therefore, the case study strategy is most suited to this research. In this respect, the remainder of this section gears the discussion towards the case study research and the mindset to undertake it.

Strategy	Form of research question	Requires control of behavioural events?	Focuses on contemporary events?
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Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, why?	No	No
Case Study	How, why?	No	Yes

Table 3.2.I Different research strategies (Yin 2003: 5)

3.2.1 Case study research

Authors of case study research prefer to advance it as a unique research strategy rather than a qualitative method. Hartley (1994), for instance, expressed the case study as a research strategy instead of a method. This is obvious from the fact that different methods could be used within a single case study, be it quantitative as a mail survey, or qualitative as an in-depth interview. The aim is to examine the phenomena in its context, especially when the distinction between the context and the phenomenon is sometimes hard to observe (Yin 1981).

In general, although it has been described as a separate research strategy, the case study research does show a lot of similarities to qualitative methods. Bryman (1988)'s work on the characteristics of qualitative research suggested that such research is, first of all, devoted to study events through the eyes of the people being studied. It is contextual in nature, and events have to be understood in their wider societal and historical background. It is a flexible and open research strategy. Secondly, theories and propositions act as guides rather than formalised models.

The case study research, in Eisenhardt's (1989: 534) words, "... focuses on understanding the dynamics present within a single setting". Bonoma (1985) suggested that case studies have to be structured to be sensitive to the context in which management behaviour takes place. Hussey and Hussey (1997: 65) defined the case study research as "an extensive examination of a single instance of a phenomenon of interest and is an example of a phenomenological methodology". Yin (2003) provided the most integrated definition for the case study research as a research strategy. To quote Yin (2003: 13):

"A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. ... The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis."

Within the case study research, there are four types suggested by Scapens (1990):

- ☐ Descriptive case studies: In such studies, the objective is restricted to describe current practice.
- ☐ Illustrative case studies: In such studies, the research attempts to illustrate new and possibly innovative practices adopted by particular companies.
- ☐ Experimental case studies: In such studies, the research examines the difficulties in implementing new procedures and techniques in an organisation and evaluating the benefits.
- ☐ Explanatory case studies: In such studies, the research uses existing theory to understand and explain what is happening.

The different types of case study are not well delineated and one type may be combined with or merged into another (Hussey & Hussey 1997). In general, using case study research remains one of the most challenging of all social science endeavours. As a research strategy, the case study is used in many situations to contribute to the knowledge of individual, group, organisational, social, political, and related phenomena (Yin 2003). Case study is a method not to be wasted on issues that are unimportant. Its real power is in part a function of the uses to which it is put (Gillham 2000).

3.2.2 Criticisms of case study strategy

Although case study research can be a very satisfying research strategy, there are some weaknesses. In case study research, the researcher usually does not follow systematic procedures, or allow ambiguous evidence or biased views to control the direction of the findings and conclusions. Therefore, one weakness of the case study research is a lack of rigor, a lack that is less likely to exist when using other research strategies. Yin (2003) in defence of this argument, explained that what is often forgotten is that bias can also enter into the conduct of experiments and the use of other research strategies. The problems are not different, but in the case study research, they may have been more frequently encountered and less frequently overcome.

A second weakness of the case study research is that it may provide little basis for scientific generalisation. Yin (2003) rejected this argument through arguing that the case study research is generalisable to theoretical propositions rather than to populations or universes. In Yin (2003: 33)'s words:

“The case study, like the experiment, does not represent a ‘sample,’ and in doing a case study, your goal will be to expand the generalise (analytical generalisation) and not to enumerate frequencies (statistical generalisation)” (p. 10). “You should avoid thinking in such confusing terms as ‘the sample size of cases’ or the ‘small sample size of cases,’ as if a single case study were like a single respondent in a survey or a single subject in an experiment.”

A third weakness of case study research is that it may take too long and result in massive, unreadable documents. Yin (2003) in clarifying this argument suggested that this argument may be appropriate,

giving the way the case study research has been done in the past. However, this is not essentially the way case study research must be done in the future, nor does it need a long time. This incorrectly confuses the case study research with a specific method of data collection, such as ethnography, which requires long periods of time and emphasises detailed evidence, or participant-observation, which requires such a similar time as with ethnography, but still assumes a large investment of field efforts.

In addition to the above weaknesses of the case study research, Hussey and Hussey (1997) mention other weaknesses. Access to an appropriate organisation is frequently not easy to negotiate and the process of the research can be very time consuming. It is also not easy to decide upon the limitations of the study. In other words, where the research is going to position the boundaries? Although the research may focus on a particular organisation or group of individuals, they do not exist in a vacuum, but interact with the rest of society.

3.3 Research design

The research design stage basically aims to develop the logic that will link the data to be collected to the initial questions of the research. It involves the development of logically convincing plans that can effectively collect the required data to answer the research questions. This section discusses issues related to the research design. Firstly, it discusses and determines the units of analysis. Secondly, it discusses the type of the research design used.

3.3.1 Units of analysis

Hussey and Hussey (1997: 66) defined a unit of analysis as “the kind of case to which the variables or phenomena under study and the research problem refer, and about which data is collected and analysed.” A unit of analysis can be an individual, a company, a group of workers, an event, or a process. The case study research involves gathering detailed information about the unit of analysis, often over a very long period of time, with a view to obtaining in-depth knowledge. Yin (2003) suggested that the tentative definition of the unit of analysis is related to the way the initial research questions have been defined.

An important issue that needs to be considered in this matter is that the unit of analysis will have a history and a future, which will influence the understanding of the present. Therefore, it might be difficult to understand the events in a particular period of time without knowledge of what went before and what may follow (Hussey & Hussey 1997). In this research, it is possible to have different units of analysis. However, the research questions lead to favouring the e-banking sociotechnical constituency-building process (a case) as the primary unit of analysis, and the bank as the secondary unit of analysis. Looking at several units of analysis would help not only in understanding the dynamics in operation (Hammady 1999), but also enhancing insights to the single case (Yin 2003).

3.3.2 Types of research design

The case study research has four basic designs: single-case (holistic) designs, single-case (embedded) designs, multiple-case (holistic) designs, and multiple-case (embedded) designs. The main difference among these four designs is the number of cases being studied and the number of units of analysis being implemented. Yin (2003) developed a 2X2 matrix that differentiates such designs of case study research (see Figure 3.3.I). The matrix shows that every design contains the desire to analyse contextual conditions as well as single and multiple case studies mirror different design situations, which can be a single unit or multiple units of analysis.

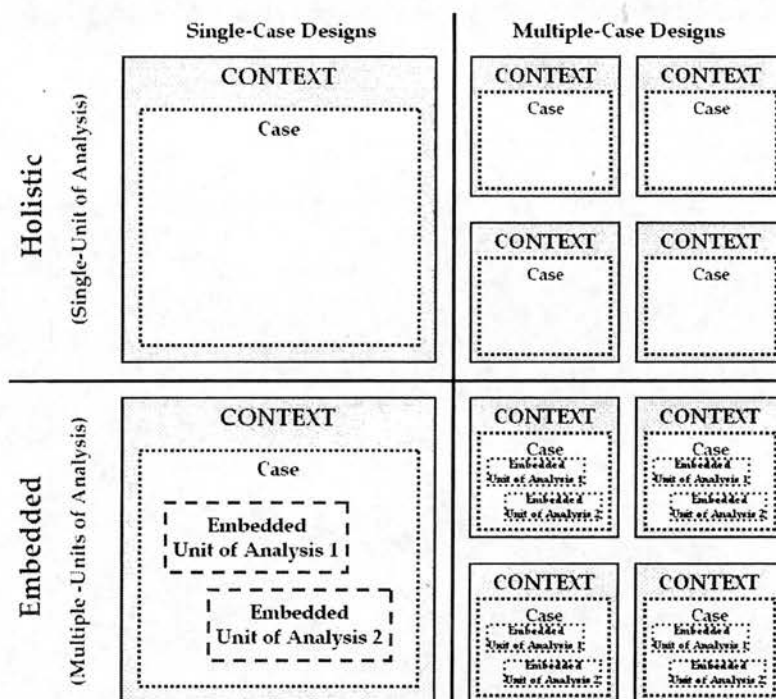


Figure 3.3.I Basic types of case study design (Yin 2003: 40)

Yin (2003) suggested that a single case study design is suitable when the case symbolises a significant text of existing theory, an uncommon or sole circumstance, or a representative or distinctive case, or when the case provides a revelatory or longitudinal purpose¹⁷. Yin has favoured the multiple-case design over the single-case design for two reasons. First, analytical conclusions arising from the multiple-case design will not only be more powerful than those arising from the single-case design, but will also have greatly extended the external generalisability of the findings. Second, if the

¹⁷ Yin (2003) pointed out another state in which the single-case study may be used as a pilot case that is on the first of a multiple-case study. However, such case studies cannot be considered as a whole study on its own.

subsequent findings support the hypothesised contrast, the results symbolise a strong start toward theoretical replication.

Whatever the case study design, the case study may contain a single unit (holistic) or multiple units (embedded) of analysis. Implementing the earlier design is recommended when logical sub-units cannot be identified or where the relevant theory underlying the case is itself, of a holistic nature. The entire case study may be conducted at an abstract level, or shift during the course of the study, therefore, Yin (2003) recommended the use of the embedded design to overcome such problems. However, the embedded design also has its own pitfalls. The case study may focus only on the sub-unit level and fail to return to the larger units of analysis.

This research attempts to present seven case studies. This leaves us with either the multiple-case (holistic or embedded) designs. Although conducting multiple case study design requires extensive resources and time, this research is looking to have more powerful conclusions that can strongly support the external generalisability of the findings. Moreover, this research focuses on multiple-units of analysis. Although the primary unit of analysis is the e-banking sociotechnical constituency-building process (a case), another unit of analysis, as the bank, was included in the study. Therefore, this research makes use of the multiple-case embedded design as a case study design.

3.3.3 Saudi banks typologies

All Saudi banks serve the same target group of customers and provide similar products and services. This research attempted to analyse the cases according to the different groups of Saudi banks. However, Al-Duhkeil (1995) provided the only typology that divides Saudi banks, according to their total assets, into three groups: large, medium, and small. The typology is based on historical analysis rather than on empirical data. Al-Duhkeil's typology only gives financial indicators, such as, total assets, as the sole pattern that distinguishes Saudi banks.

This research developed two different typologies based on indicators other than the financial ones. Based on historical records, the first typology divides Saudi banks in accordance with the ownership entity, assuming that owners of a bank would influence its general strategic direction. It divides Saudi banks into four groups. The first group is the national banks which include banks owned totally by Saudis. The second group is the joint venture banks. These banks are owned by both Saudis and international banks. The third group is the foreigner investment banks which are owned by Saudis and non-Saudis. The fourth group emerged in 2001 after liberalising the Saudi banking sector. These banks are owned entirely by non- Saudis (e.g., Emirates Bank, Deutsche Bank).

The second typology, however, is based on the empirical data gathered during the data collection stage of this research and deploys the main type of customers being served by a bank as the separation factor. The typology assumes that the type of customers being targeted by a bank influence its general

strategic direction. Accordingly, the typology separates Saudi banks into two groups: retail and corporate banks.

3.4 Data collection

Collecting case study evidence is a critical and time-consuming task. It requires a lot of attention to every aspect surrounding the case being studied. This section discusses issues related to the data collection task during the empirical part of the research. Firstly, it discusses the pilot studies as well as the main fieldwork. Secondly, it discusses sources of evidence used for doing the case studies. Thirdly, the section discusses issues surrounding the semi-structured interviews, the main source of evidence. Lastly, the section gears the discussion to the principles used during the data collection task.

3.4.1 Pilot study

Zikmund (2003: 41) defined a pilot study as “any small-scale exploratory research technique that uses sampling, but does not apply rigorous standards.” It collects data from the ultimate subject of the research to serve as a guide for the larger study (Zikmund 2003) and can cover both substantive and methodological issues (Yin 2003). The responses and comments received from pilot studies help in assessing whether the questions are clear, understandable, unambiguous and the like (Arksey & Knight 1999). They also help to refine the data collection plans with respect to both the content of the data and the procedures to be followed (Yin 2003).

The research process conducts two pilot studies during August 2003 in Saudi Arabia with AlRajhi and Riyadh. The main criteria for selecting the pilot cases were convenience and access. The first pilot study involved interviews with CIO, Head of e-Commerce, and Manager of Technical Support, whilst the second pilot study involved an interview with the Executive Vice President of IT. Moreover, all interviews followed an in-depth style based on the interview guide¹⁸, portrayed below in Table 3.4.I. The points discussed were not usually in order, allowing the interviewees to explore into the areas that they found most interesting or important. Nonetheless, throughout all the interviews, these points have been addressed in one way or another.

¹⁸ I wish to express my deep thanks to the members of the Institute of Banking (IOB), SAMA, who piloted the pilot studies' interview guide, the survey and the semi-structured interview guide (next sections). I am thankful to Mr. Omar Al-Abdullatif, Management Training Consultant, Dr. Ziyad Naji, Head of Management & Marketing Studies Unit, and Dr. Rajappa Prakasam, Director of Applied Research and Information Centre.

General Topic	Specific Issues
Position & Role	The formal position The roles & functions undertaken
Perception to Banking Technologies	The important of them Attitude toward them Investments & plans
Perception of e-Banking	The important of it Attitude toward it Investments & plans
Strategic Position	Intra-bank level Inter-bank level Beyond the banking sector
Challenges	Banking technologies challenges E-banking challenges Strategic challenges
Remarks & Suggestions	Perceptions about the interview Perceptions about the study Other issues to discuss

Table 3.4.I Pilot studies' interview guide

These pilot studies are initial and of an exploratory role. The findings of the pilot studies are critically important in formatting the data collection process, in particular, and the entire research, in general. The findings lead to the following decisions:

1. To focus on the Saudi market and discard other markets, such as the UK market.
2. To survey all of the existing ten Saudi banks at that time.
3. To use three sources of evidence:
 - a. A survey to be distributed to all Saudi banks¹⁹ (see section 3.4.3 for more details).
 - b. Semi-structured interviews with interviewees from all Saudi banks and other related organisations (see section 3.4.3.3 for more details).
 - c. Archival records of e-banking transactions provided by SAMA (see section 3.4.3.1 for more details).

3.4.2 Main field work

The main fieldwork takes place during three rounds: September-October 2003, December 2003-March 2004, and December 2005-January 2006. The first round (1) distributes the survey to all Saudi banks, and (2) places a contact at each Saudi bank. The second round (1) conducts semi-structured interviews

¹⁹ These banks are AlJazira Bank, AlRajhi Bank (AlRajhi), Arab National Bank (AlArabi), Banque Saudi Fransi (AlFransi), National Commercial Bank (AlAhli), Riyadh Bank (Riyad), Sabb Bank (Sabb), Samba Financial Group (Samba), Saudi Hollandi Bank (Hollandi) and Saudi Investment Bank (Saib).

with all Saudi banks, and (2) obtains the archival records of e-banking transactions from SAMA. The third round conducts the markings for (1) the “alignment web” (Molina 2003) with six Saudi banks and Tadawul, and (2) “dynamic strategy mapping” (DSM) (Molina 2005) with two Saudi banks and Tadawul. In this respect, it can be said that the research applies a longitudinal approach as this helps provide the information necessary to evaluate phase models of strategy development (Schneider & Sodian 1997).

Separating the main fieldwork into three rounds has its advantages and disadvantages. The first advantage is that it facilitates a better validation of the findings and strength of the conclusion. The second advantage is that the questions in the semi-structured interview can, to some extent, be made more precise following the responses received in the survey. The third advantage is that the second round becomes an opportunity not only to conduct semi-structured interviews, but also to seek further clarification and verification on issues mentioned in the survey²⁰. The fourth advantage is that the gaps between the rounds help to develop trust with the interviewees, a crucial requirement for having successful interviews (Walsham 1995).

On the other hand, the main pitfalls of separating the main fieldwork into three rounds are time and cost. Longitudinal studies are costly, time-consuming, and difficult to implement (Schneider & Sodian 1997). In addition, to increase the number of contacts further invites loss of subjects (Murray & Erickson 1987). The entire fieldwork took about nine months and required travelling to Saudi Arabia three times.

3.4.3 Sources of evidences

Gillham (2000) and Yin (2003) suggested six sources of evidence that are most commonly used in case study research: documentation, archival records, interviews, direct observations, participant observation, and physical artefacts. Each single source has strengths and weaknesses and no one

²⁰ Indeed, I faced interesting methodological issues on two occasions. The first occasion occurred with Riyadh Bank. Prior to publishing a first version of the qualitative analysis of the Riyadh's e-banking constituency (In Proceedings of the 5th IBIMA Conference on the Internet and information technology in modern organisations, Cairo: Egypt, 13-15 December 2005, 320-345, see Appendix V), I received a direct contact from Riyadh's Vice CEO criticising the conclusion of the study. The discussion led to an interview with Riyadh's Vice CEO during January 2006 in Riyadh, Saudi Arabia to re-assess the initial conclusions of the study. The re-assessment is forthcoming in Soliman, K. S. (ed.). *e-Business impact on supply chain and business process: Analysis and Best Practice*, IBIMA Press: New Your (see Chapter 9 & Appendix V). The second occasion occurred with Saudi Investment Bank (Saib). Prior to publishing the qualitative study of Saib's e-Banking constituency (In Proceedings of the IADIS International Conference WWW/Internet. Lisbon: Portugal, 19-22 October 2005, Vol. 1, 118-129, see Appendix V), I received a phone call from Saib's CEO criticising the interpretation of the role of Saib within the Saudi Arabian banking sector. Such comments are reflected in the final version of the qualitative study of Saib's e-Banking constituency (Chapter 6). Such occasions not only helped to clarify many issues, but also supported the validity of the findings and strength of the conclusion.

source has a complete advantage over all the others. Therefore, in Yin (2003: 97)'s words, "a major strength of case study data collection is the opportunity to use many different sources of evidence." In this research, three relevant sources of evidence have been used: archival records, survey, and semi-structured interviews. A discussion on collecting such sources follows.

3.4.3.1 Archival records

Gillham (2000: 21) defined archival records as "the things that go back in time, but may provide a useful longitudinal fix on the present situation." They are either public, usually prepared for some audience, or private, prepared for private audiences (Berg 1995). Yin (2003) recommended using archival records in conjunction with other sources of evidence in developing a case study. In such a situation, care must be taken to determine the circumstances under which they were produced as well as their accuracy. In Yin's (2003: 89) words, "most archival records were produced for a specific purpose and a specific audience, and these conditions must be fully appreciated in interpreting the usefulness and accuracy of the records."

This research attempts to use archival records of e-banking transactions provided from the Banking Technology Department, SAMA²¹. SAMA operates all inter-bank technological networks, such as the Saudi Payments Network (SPAN) and the Saudi Arabian Riyal Inter-bank Express (SARIE). Records related to transactions performed over such networks are kept with SAMA for settlement and auditing purposes. The research attempts to use such relevant archival records in conjunction with both the survey and the semi-structured interviews in doing the case studies. It is believed that using such a combination will enrich the analysis of case studies and support the accuracy and the validity of the findings.

3.4.3.2 Survey

A survey is "a positivistic methodology whereby a sample of subjects is drawn from a population and studied to make inference about the population" (Hussey & Hussey 1997: 63). The development of a survey research design involves creating a questionnaire, determining the list of questions, and designing the exact format of the questionnaire (Zikmund 2003). It is normal to collect data about each member of the population in the case of a small population. However, with a large population, it would be too time consuming and costly to gather data about every member, and therefore only a sample of the whole population is used (Hussey & Hussey 1997).

A survey might be used in a case study to obtain quantitative and qualitative data as part of the case study evidence. According to Yin (2003), this approach would be appropriate, for example, if the case

²¹ I wish to express my deep thanks to the members of the Banking Technology Department, SAMA. I am particular thankful to Mr. Ibraheem Al-Sayari and Mr. Ibraheem Al-Saleh for co-operation with archival records of e-banking transactions.

study is about an organisation's project and the researcher surveyed a group of workers or managers about the project. This research uses a survey technique as a part of its sources of evidence. The research develops a long survey, titled "emergence and evolution of e-banking in Saudi Arabia," to survey the main divisions and departments at each Saudi bank, such as Retail Banking, Corporate Banking, Investment and Technology.

The survey aims to gather related information to the emergence and evolution of e-banking at each Saudi bank. It contains thirteen sections where each section aimed to receive responds from different divisions or departments. The SAMA's Banking Supervision Department distributed and collected the survey during October-December 2003²². The co-operation with SAMA may raise the argument that such co-operation would prevent banks from accurately responding to the survey's questions. In defence of this argument, the research proves that without the co-operation of SAMA, it would not be possible to not only to access all Saudi banks, but also to obtain such large amounts of evidence.

The development of the survey took place during August-September, 2003. The survey involves a lot of questions, both closed and open ended questions, about many aspects associated with e-banking products and services. Moreover, to assess its scope, the survey has been piloted to a group of banking consultants from the Institute of Banking (IOB), SAMA, during October, 2003. Arthur and Nazroo (2003) suggested that piloting a survey is significant in reassessing whether the survey's questions address clearly the full and logical account of the central issues of the study. In general, although some banks preferred to not answer some of the survey sections/questions, the overall response is very high, adding more values to the sources of evidence. An electronic copy from the survey has been placed in Appendix I.

3.4.3.3 Semi-structure interviews

The semi-structured interview is a qualitative data gathering technique, used to gather information about people's views, opinions, ideas, and experiences (Arksey & Knight 1999). It is placed between the structured and unstructured interview and involves the use of a number of pre-determined questions, which are usually asked in an organised and consistent way, and interviewers are allowed freedom to digress (Berg 1995). According to (Gillham 2000), it is the most important form of interviewing in case study research. However, Gillham suggested that researchers should not use it until they become clear about what the research's key issues are, and what will best be answered in a face-to-face interview.

²² I wish to express my deep thanks to the members of the Banking Supervision Department, SAMA. I am particular thankful to Mr. Ahmed A. Al-Isheikh and Mr. Saleh M. Al-Sultan for distributing and collecting the survey.

This research constructs a semi-structured interview guide to guide the discussion. The guide consisted of four main sections, namely e-banking department, e-banking products and services, competition and governance/legal aspects, and each section has from six to nine questions organised in a systematic and consistent order. The guide has been developed after receiving the responses from the above survey. Therefore, it was not only limited to its predetermined questions, but has also flexible to seek clarifications and verifications about some critical issues that have been poorly answered in the survey. Reasonable verifications for the sources of evidence have been gained through using such techniques. An electronic copy from the guide has been placed in Appendix II.

Prior to the interviews, the research process did not know the optimal interviewees to discuss with issues related to the emergence and evolution of e-banking. To overcome such challenges and nominate appropriate interviewees at each bank, the following technique has been implemented. The guide has been sent to the contact persons to ask them to nominate at least two appropriate interviewees for the interview. Then, the guide has been sent to the nominated interviewees asking them to arrange an interview, advising them to be aware of the questions and topics of the interview prior to the interview. Such techniques helped the research process to make the interview more focussed on to the predetermined issues.

Most of interviewees are operations and technology people, whilst some of them are strategic people (see Table 3.4.II). The research process experienced trust development with some interviewees, relationship free, as suggested by King (1994). These interviewees were usually going beyond the questions to give an insight into the topic being explored. However, the research process could not achieve such relationship in other situations. In such situations, the interviewees usually:

“... seek to get the interview over as quickly as possible, with enough detail and enough feigned interest to satisfy the researcher that he or she is getting something of value but without saying anything that touches the core of what is actually believed and cared about in the research ...” (Easterby-Smith et al. 2000: 77).

Interviewees' organisational levels	Bank
Strategic	AlAhli, Riyad, AlFransi, Hollandi, Saib, CMA, SAMA, Tadawul
Operational	Riyad, AlRajhi, Samba, Saab, AlFransi, Hollandi, AlArbi, Saib, AlJazira
Technological	AlAhli, Riyad, AlRajhi, Samba, Saab, Hollandi, AlArbi, AlJazira
Other	AlRajhi

Table 3.4.II : Interviewees' organisational level

3.4.4 Transcribing the interviews

Transcribing is a part of the organisation and management of the data. It is the production of a written record of the interview. However, many social scientists would deny that there is one real version of reality to be captured. Accordingly, a transcript is one interpretation of the interview, and no more than one interpretation. Consequently, "transcription is neither neutral nor value-free. What passes from tape to paper is the result of decision about what ought to go on to paper" (Arksey & Knight 1999: 141).

Transcribing may be partial or full transcribing. Partial transcribing is where the researcher keeps full interview notes and has only key sections of the tape transcribed. If the purpose is to use the interviews to get an understanding of the range of ideas used, then this may be acceptable. Full transcribing, however, as the name indicates is a full transcribing of the interview. However, such transcription is expensive (Arksey & Knight 1999). Hart (1987) reported that transcribing an hour of the interview would require four hours whilst Pidgeon and Henwood (1996) reported that it would take from eight to ten hours to transcribe an hour of a tape.

Having transcribed the interviews, the interviewer needs to check the transcripts for accuracy and suitability, which can be time consuming. Arksey and Knight (1999) suggested two approaches for checking accuracy. The first approach, the faster, is to read the transcript and if it makes sense, leave it at that, correcting only the obvious errors. The second approach, the slower, is to read the transcript whilst playing the tape. The decision about which approach to follow "depends on how much it matters if the faster approach misses points that the slower approach would pick up" (Arksey & Knight 1999: 146).

In this research, the transcription process was very labour intensive work. Transcribing the interviews followed the full transcribing approach for transcription and the slower approach of checking for accuracy suggested above. The reason for that, basically, was to gain full understanding of the cases being studied. Overall, it took around eight to thirteen hours to transcribe an hour of a recorded semi-structured interview. The interviewee accent was an important factor in determining the speed of transcribing. For example, the interviews have been conducted with Saudis, Arabs, British, Dutch, Americans, Indians, and Chinese. The hardest and most time-consuming to transcribe were those with a Chinese accent.

The interviews have been recorded with a good quality tape recorder, with a built-in microphone, sensitive enough to pick up interviewee responses and filter away any background noise. This investment paid off by providing good quality recorded interviews, which eased to some extent, the quality of transcribing. Moreover, of the 26 interviews that have been conducted, 22 were taped whilst the remaining 4, which interviewees refused permission or appeared uncomfortable in its presence,

relied on note taking. Although notes have been edited immediately after the end of each non-taped interview, tape recording provided more accurate rendition than note taking.

3.4.5 Triangulation

Ritchie (2003: 43) defined triangulation as “the use of different methods and sources to check the integrity of inferences drawn from the data.” Triangulation assumes that the use of different sources of evidence helps to confirm and to improve the clarity of research findings (Lewis & Ritchie 2003). Triangulation has been widely adopted and developed by qualitative researchers as a mean of investigating the convergence of both the evidences and the findings derived from them. It is also often quoted as one of the fundamental ways of validating research evidences (Ritchie 2003).

Patton (2002) suggested four different types of triangulation:

1. Method triangulation: comparing data generated by different methods (e. g. qualitative and quantitative).
2. Sources triangulation: comparing data from different qualitative methods (e. g. observations, interviews, documented accounts).
3. Analysts’ triangulation: using different observers, interviewers, and analysts to compare and check data collection and interpretation.
4. Theory triangulation: looking at data from different theoretical perspectives.

Miles and Huberman (1994) suggested that the aim here is to select triangulation sources that have different biases and strengths, allowing them to complement each other. Denzin (1970) argued that using different methods adds more reliability than using a single one.

There is a debate about whether triangulation should be used in validating data or in deepening the understanding of a subject (Lewis & Ritchie 2003). Ritchie (2003) brought two concerns in this matter. First, there is no single reality of the social world to determine, and trying to do so through the use of multiple sources of information is useless. Second, all methods are unlikely to generate perfectly concordant evidence because they have a specificity in terms of the type of data they yield. However, several authors, according to Ritchie, now argue that the value provided by triangulation attempts to give a fuller image of phenomena and not necessarily a more convinced one.

Yin (2003) suggested that the use of multiple sources of evidence is more expensive than collecting data from a single source, and each researcher needs to know how to implement different ranges of data collection techniques. Hussey and Hussey (1997) added that the task is very complicated and should aim to create a good research design rather than to fix a poor design. In general, the most important advantage presented by using multiple sources of evidence is the development of

“converging lines of inquiry”. Findings based on several different sources of information are likely to be more convincing (Yin 2003).

The triangulation strategy depended on the use of a multiple case study research design, the conduct of interviews with different interviewees from each bank, and the attempt to inspect the three sources of evidence. According to Stake (1994: 241), such technique could “clarify meaning by identifying different ways the phenomenon is being seen.” Moreover, the achievement in triangulation depended on how co-operative the banks were. For example, four interviewees have been interviewed at some banks but only one interviewee from one bank. Additionally, there was a challenge accessing strategic documents at banks. Overall, the research invested in all available efforts to successfully strengthen the strategy.

3.5 Data analysis

Data analysis involves examining, categorising, tabulating, testing, or re-combining both quantitative and qualitative evidence to address a study’s questions (Yin, 2003)²³. Robson (1993) suggested that the main challenge to qualitative data analysis is that there is no clear and accepted set of rules for analysis corresponding to those observed with quantitative data. Morse (1994: 23) added, “despite the proliferation of qualitative methodology texts detailing techniques for conducting a qualitative project, the actual process of data analysis remains poorly described.”

Analysis of case study evidence is especially difficult because the strategies and techniques have not been well defined (Yin 2003). This section discusses issues related to the data analysis task practiced during the empirical part of the research. Firstly, it discusses the general analytical strategy. Secondly, it discusses the deployed data analysis techniques. Then, it highlights the methods and the cross-case analysis strategies that have been used. Lastly, the section gears the discussion to the computer-aided program used to analyse the data.

3.5.1 Data analysis strategy

Case studies can be conducted from different sectors of the industry to capture the similarities and the differences in the technological innovation process (Narvekar & Karuna 2006). However, the analysis

²³ A lot of references have been made so far to Yin (2003). In fact, “the author is a prominent writer on case study method and could be considered the authority on case studies” (Hammady 1999: 92). His book, *Case Study Research: Design and Methods*, “has done more than anything else to establish the case study as a legitimate mode of research” (Gillham 2000: 103). Platt (1992: 46) stated that “what Yin has done, thus, is to redefine case study method as a logic of design, seeing it as a strategy to be preferred when circumstances and research problems are appropriate rather than an ideological commitment to be followed whatever the circumstances. The logic he uses is, moreover, one generally accepted among contemporary methodologists more than an alternative one; he has brought (his conception of) case study method into the mainstream intellectually, even if this does not yet show in the general textbooks.”

of a case study is one of the most difficult and least developed tasks. This is because “there are few fixed formulas or cookbook recipes to guide the novice. Instead, much depends on an investigator’s own style of rigorous thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations” (Yin 2003: 110). Consequently, to analyse case study evidence, a general analytical strategy is needed. Yin suggested three strategies; relying on theoretical propositions, setting up a framework based on rival explanations, and developing case descriptions. A discussion of each strategy is below.

3.5.1.1 Theoretical propositions

This strategy simply builds the original objectives and design of the case study on theoretical propositions. Such propositions would reflect a set of research questions, reviews of the literature, and new hypotheses or proposition, shape the data collection plan, and give priorities to the relevant analytic strategies (Yin 2003). Hussey and Hussey (1997) suggested that the use of theoretical propositions in analysing case study evidence helps to frame the research and give possible interpretations of what is observed. Yakhlef (2001), for instance, studied the Internet as a new locus for value creation at three ventures – a virtual university, a restaurant, and a music store - via using three value-adding strategies - content, context, and infrastructure.

3.5.1.2 Rival explanations

This strategy attempts to define and test rival explanations. The strategy is especially useful in doing case study evaluations. Yin (2003: 113) suggested “the more rivals that the analysis addresses and rejects, the more confidence you can place in your findings.” An example of using the rival explanation strategy in analysis, a case study is Rao’s (1999) study on the impact of the Internet on the value chain of three industries that have been either radically altered by the Internet, or that are facing tremendous challenges as they head into the future - the retailing industry, banking industry, and the music industry.

3.5.1.3 Case descriptions

This strategy attempts to develop a descriptive framework to organise the case study. It is a less preferable choice than the other two strategies, but serves as an option when there are problems with either of the other strategies. Yin (2003) suggested that this strategy is suitable when the original purpose of the case study is a descriptive one, or when a descriptive approach helps to identify the appropriate causal links to be studied. Aladwani’s (2001) study of the perceptions of banks’ executive and IT managers, and potential customers with regard to the drivers, development challenges, and expectations of online banking is an example of using the case description strategy.

Although using a general analytical strategy is very critical in the analysis of a case study, the creative logic behind the entire process is the challenge. To quote Yin (2003: 111):

“The strategy will help you to treat the evidence fairly, produce compelling analytical conclusions, and rule out alternative interpretations.... Regardless of the choice of strategies, a persistent challenge is to produce high-quality analyses, which require investigators to attend to all the evidence, display and present the evidence separate from any interpretation, and show adequate concern for exploring alternative interpretations.”

The thesis utilises the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005). As indicated earlier, the aim from conducting such large deployment from a single theoretical field is not only to reveal how banks build their e-banking capabilities as well as create new value strategies, but also to test the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding the potentials of e-banking value creation and capabilities-building. The markings for both “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005) were conducted by a member of the constituency at each bank through semi-structured interviews. Each member received a full version of the case study description and was asked during the interview to evaluate the state of alignment.

One of the challenges emerged during the evaluation process is the availability of the same interviewee who had been interviewed two years ago. For example, interviewees from Riyadh were interviewed during January 2004 have left the bank. During January 2006, a new interviewee has been interviewed who has not only almost no background about the research, but also a different view about the state of alignment during the e-banking constituency-building process. Another challenge was the accuracy of the evaluation as there was only one evaluator from each bank, eliminating a general view of the state of alignment process.

The overall result has generated a clear overview of the strengths and weaknesses of the different alignments implied in the e-banking constituency-building process. It has also provided interesting insights about the e-banking constituency-building process. The resulting pattern highlighted those areas requiring greater attention to secure the success of the constituency, consequently, assisted in devising strategic responses for the future.

3.5.2 Data analysis techniques

In the analysis of case studies, Yin (2003) suggested the following five techniques that can be practiced to implement one of the data analysis strategies described above:

1. Pattern matching: This technique contrasts an empirically based pattern with single or multiple predictions, hoping to find matching patterns that will strengthen the internal validity of the case being studied.

2. Explanation building: This technique aims to analyse the case study evidence through building an explanation about the case.
3. Time-series analysis: This technique performs a time-series analysis that can pursue many intricate patterns. The more intricate and accurate the pattern, the more technique will lay a concrete base for the conclusions of the case study. In doing a multiple case study, the same logic can be used, with different time series patterns suggested for different cases.
4. Logic models: This technique consists of matching empirically observed events to theoretically predicted events. It specifies a complicated chain of events over time where the events are dramatic in repeated cause-effect-cause-effect patterns.
5. Cross-case synthesis: This technique is only applied to the analysis of multiple cases and it is particularly applicable if a case study involves more than one case.

This research attempts to use both the pattern matching technique and the explanation building technique. The reason for that was to understand what was happening during the development of e-banking products and services as well as what possible explanations to the questions can be drawn. Moreover, the logic models strategy has been used to theoretically contribute to the propositions being used. The cross case synthesis also has been used to value the findings at the multiple case level. The argument here is that using multiple techniques in implementing the data analysis strategy is useful and hoped by doing so, to draw findings that are logically convincing.

3.5.3 Data analysis methods

One of the few books giving helpful advice for analysing qualitative data is Miles and Huberman (1994). They suggested qualitative data analysis methods that are useful during the early stages of a study, often while data collection is going on. They also suggested that early analysis helps to cycle back and fourth between thinking about the existing data and generating strategies for collecting new data. What follows is a description for the two methods used in the research, namely coding and pattern coding.

3.5.3.1 Codes and coding

Miles and Huberman (1994: 56) defined codes as “tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study”. Coding involves how researchers distinguish and merge the collected evidence and how they make reflections concerning such evidence. Miles and Huberman suggested developing an impermanent start-list of codes prior to fieldwork. Such a list comes from the theoretical framework being used, the list of research questions, hypotheses, problem areas, and/or key variables that the researcher brings to the study. The list should involve codes in a coherent way and definitions of what each code mean to the study. Table 3.5.I

portrays the provisional start-list of codes. The codes were adopted from the “sociotechnical constituencies” approach (Molina 1990; 1993).

Code ID	Main Codes
CPGAR	Constituents’ perceptions, goals, actions and resources
NMT	Nature and maturity of the technology
G	Organisational governance
TCPP	Target constituents’ perceptions and pursuits
NTP	Nature of target problem
ITC	Interacting technologies/constituencies

Table 3.5.I Provisional list of codes

3.5.3.2 Pattern coding

Pattern codes are explanatory or inferential codes that identify an emergent theme, configuration, or explanation. Pattern coding aims to filter a lot of data into more meaningful components. According to Miles and Huberman (1994), it reduces large amount of evidence into a smaller number of analytic units. It also gets the researchers into analysis during data collection and helps them to elaborate a cognitive map, a more integrated scheme for understanding local events and interactions. For multiple case studies, pattern coding lays the groundwork for cross-case analysis by surfacing common themes and directional processes.

3.5.4 Strategies for cross-case analysis

Miles and Huberman (1994) suggested two fundamental reasons for doing cross-case analysis. First, it enhances generalisation, although it is argued that this goal is improper for case studies. Second, it expands understanding and explanation. The implication is not that one or the other approach is better for case study analysis, rather, the issue is one of making reasonable choices, alternating and/or combining/integrating methods as a study procedure. Miles and Huberman (1994) discussed the following analytical strategies that are appropriate when dealing with cross-case analysis:

- ☐ Replication strategy: This strategy, sponsored by Yin (2003), used a framework to study one case in depth, and then following cases are studied to find matching patterns with the previous case.
- ☐ Multiple exemplars strategy: This strategy, advocated by Denzin (1989), collected multiple cases, bracketed them, and inspected them for critical elements or components. The elements are then reconstructed into an efficient way and put back into the natural social context.
- ☐ Types or families strategy: This strategy approaches the analysis through structuring types or families and examines cases in a set to find out whether they emerge into clusters, which can sometimes be ordered or sorted along some dimensions.

- Meta-ethnography strategy: This strategy involves using the findings of one study to predict those of another study, looking at inconsistent cross-case findings, and constructing a common interpretation based in the findings of separate studies.
- Pattern clarification strategy: This strategy comes to sort such difficulty. The strategy approaches the analysis through looking for themes that cut across cases.
- Stacking comparable cases strategy: This strategy writes up first, each case via the use of a standard set of factors, then uses matrices and other displays to analyse each case in-depth. After a detailed understanding of each case, the strategy stacks the case-level displays in a meta-matrix, which is then further condensed, allowing systematic contrasting.
- Interactive synthesis strategy: This strategy, supported by Fischer and Wertz (1975), approaches the cross-case analysis through writing individual case synopses, then by carrying out a cross-case narrative with themes and a general condensation, followed by cycling back to the case synopses to see how the condensation was exemplified there, and lastly writing a general structure describing the process being studied.
- Boolean analysis strategy: This strategy, provided by Ragin (1987), involves arraying binary data on several variables for each of the several cases in a truth table and then identifying alternative patterns of multiple conjunctural causations.

The above analytical strategies seem to provide useful scenarios and guides when there is a need to perform a cross-case analysis. However, each strategy has its advantages and disadvantages and seeks different requirements. Giving the aim of the cross-case analysis as well as the research questions, this research attempted to use the stacking comparable cases strategy to guide the cross-case analysis. Using such strategy would help clarify informative conclusions and confidently generalise the findings. However, the research has been flexible in practicing other strategies when there was a need to do so.

3.5.5 Computer aided approaches

There is much existing literature on computer-assisted methods for qualitative data analysis, which charts the development of computer approaches and appraises the process and outputs they generate. There have been several attempts within the literature to classify the different types of computer assisted qualitative data analysis software (CAQDAS) that have come into existence since the early 1980s (Spencer et al. 2003). Miles and Huberman (1994) and Weitzman (2000) provided the most up-to-date categorisation of CAQDAS software, which categorises software into six types:

1. Word processors: Word processors, such as MS Word, are basically designed for the production and revision of text, and are useful for taking, transcribing, writing up, or editing field notes, for memos, for preparing files for coding and analysis, and for writing report text.
2. Text retrievers: These programs facilitate the searching of large amounts of data for instances of words or phrases. Examples of such programs include Metamorph, Sonar Professional, and WordCruncher.
3. Text managers: These programs are data management packages that provide a route to the data stored and are usually searched in a similar way to text retrieval programs. Examples of such programs are FolioVIEWS, MAX, and ZyINDEX.
4. Code-and-retrieve programs: These programs allow the analyst to label or tag passages of text that can later be retrieved according to the codes applied. Examples of code and retrieve programs include Ethnograph, NUDIST, and NVivo.
5. Theory builders: These programs support the conceptualisation of data by the analyst and may also have extended hyperlinking facilities, which allow the analyst to create links between different aspects of the data set. Examples of such programs include AQUAD, NUDIST, and NVivo.
6. Network builders: These programs facilitate the graphic display and investigation of conceptual, cognitive, or semantic networks within a data set. Examples of network builders programs are MECA, ATLAS/ti, and MetaDesign.

Within the existing literature, there is much emphasis placed on finding the optimal program for the data analysis, rather than developing the structures and processes of a particular piece of software to dictate how the researcher carried out qualitative analysis (Spencer et al. 2003). Therefore, Weitzman and Miles (1995) suggested that the most important functions to investigate in a CAQDAS software are coding, memos or annotation, data linking, search and retrieval, concept/theory development, data display, graphic editing, flexibility, and user friendliness.

In comparison with manual methods, the main benefits of CAQDAS software are “the speed in handling large amounts of data, the improvements in rigour or consistency of approach, the facilitation of team research, the ability to assist with conceptualisation of data and theory building, and the relative ease of navigation and linking of data” (Spencer et al. 2003: 207). However, according to Spencer et al, there is a concern about the implications of different software types for analytical process and output. Therefore, many researchers advocate the use of hypertext links that do not segment text, and permit the analyst to browse and create complex pathways through data as an alternative use of computers to aid qualitative data analysis.

Overall, the use of CAQDAS software in qualitative data analysis should not obviate the crucial role of the researchers within the analysis process (Spencer et al, 2003). Therefore, Weitzman (2000: 805) asserted that “using software cannot be a substitute for learning data analysis methods”. Coffey and Atkinson (1996: 187) also stated that:

“None of the computer programs will perform automatic data analysis. They all depend on researchers defining for themselves what analytic issues are to be explored, what ideas are important, and what modes of representation are most appropriate.”

Among the above CAQDAS software, Ethnograph was the least sophisticated system and might have been sufficient for this research’s data management requirements (Ghuloom 1997). However, this research used desktop applications, such as MS Excel and MS Access, to analyse the sources of evidence.

3.6 Conclusion

This chapter discussed the research methodology and the path the research process followed in conducting the empirical work and analysis. The chapter discussed the aim of the thesis, the research strategy, the research design, the task of collecting data and the task of analysing the data.

Chapter 4: Samba Financial Group

4.1 Introduction

This chapter investigates the emergence and evolution of e-banking at Samba²⁴. It provides a brief overview of Samba and some of the key events shaping its developments in almost 25 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 4.1.I provides information related to interviews conducted at Samba²⁵.

Interviewee	Date
e-Banking Analyst	December 2003
e-Consumer Manager	December 2003
IT Head	December 2003
e-Banking Analyst	January 2006

Table 4.1.I Interviews conducted at Samba

4.2 Brief overview

Samba opened for business in 1980 after taking over the existing two branches of Citibank in Riyadh and Jeddah. The initial capital of SAR 300 m was increased to SAR 600 m in 1988, to SAR 1,200 m in 1992, and to SAR 2,400 m in 1995.

Samba’s strategy is that “we will focus our efforts and resources in offering superior world-class services and maintain our leadership in the banking arena,” (Samba 2005). Its mission statement reflects its scope (Samba 2004: 15):

“To provide the premier financial institution in Saudi Arabia, providing world class solutions to our customers; not only meeting their needs but serving them beyond their expectations; investing in people; benefiting the communities in which we operate, delivering superior returns to our investors.”

²⁴ An initial version of Samba’s case study can be found at: Al-Jadeed, M. & Molina, A. 2005a. The emergence and evolution of e-banking in Saudi Arabia: The case of Samba Financial Group. In Proceedings of e-Business Research Forum 2004. Tampere: Finland. 20-22 September. Vol. 1, 90-106. An electronic copy from the paper is attached as a part of Appendix III with permissions from both the publisher, Tampere University of Technology and Tampere University, and the co-author, Professor Alfonso Molina.

²⁵ I wish to express my deep thanks to Samba’s interviewees for their positive and open attitude to the research questions. Also, I wish to thank the Samba’s Financial Control & Planning Group for administering the survey, and all other groups and divisions who responded to the survey.

Figure 4.2.I goes deeper than the mission statements and provides Samba's core values that involve customers, staff, improvement, corporate citizenship, and investors.

We are dedicated to our customers ...
A strong resolve and commitment to provide solutions encompassing advice and choices, while consistently delivering high quality services.
We are committed to our people ...
A work environment that embraces excellence as a discipline ... attracts it ... reward it ... and protects it
We always look for ways to improve ourselves ...
Relentlessly focused on quality, encouraging innovation, and initiative taking, communicating freely ... openly ... and transcending business boundaries.
We stand for sound corporate citizenship ...
We never compromise our integrity ... active in community programs ... respectful to laws and regulations.
We deliver superior returns to our investors ...
A business strategy that is responsive to market
Conditions with a long term perspective.

Figure 4.2.I Samba's core values (Samba 2006)

During the mid-1980s, Samba started looking towards overseas expansion whilst focusing on retail, corporate, and investment businesses in domestic banking. In the 1990s, "the bank has identified leadership, in every facet of its banking activities, as the mission of the decade" (Al-Duhkeil 1995: 78). In line with this statement, Samba continued to offer innovative products and services, and kept up the pace of technological upgrading. Since its inception, Samba embarked upon a conscious policy of branch expansion based on the continuing evaluation of customer service needs. Both its structural set-up and its organisation of activities continue to reflect its sense of the changing needs of various customer segments, which "seems to be identifying rather too closely with the elite class" (Al-Duhkeil 1995: 78) (see

Table 4.2.I).

(SAR millions)	For years ended December 31				
	1983	1988	1993	1998	2003
No. of branches	5%	4%	4%	4%	5%
Total assets	9%	11%	14%	19%	15%
Total liabilities	9%	11%	14%	20%	14%
Share capital	21%	20%	11%	14%	16%
Shareholders equity	11%	11%	10%	18%	15%
Net income from operations	16%	20%	24%	24%	11%

Table 4.2.I Samba's market share positions, 5-year periods, (Al-Duhkeil 1995; Tadawul 2006)

By 1997, Samba was providing traditional banking products and services through 43 branches across Saudi Arabia, amounting to about 4% of the sector's working branches. Samba was the third largest bank in terms of total assets and the second largest in terms of net income, at SAR 45,633 m and SAR 1,042 m, respectively. In terms of ownership and organisation, Citigroup held 30% of Samba's shares and Saudi nationals, including two agencies for social welfare, held the remaining 70%. Citigroup

managed Samba as a local Saudi subsidiary through its management team led by Mr. Mike de Graffenried as the bank's Managing Director. Citigroup controlled the Board of Directors (BODs) and defined the long-term policy and strategy of the bank. The organisational structure was similar to other banks with the Consumer Banking Group being the biggest division, in terms of budget and number of operations, followed by the Corporate & Investment Banking Group.

4.3 Some key events

Samba has faced many challenges since its inception. However, two key events required Samba not only to restructure itself, but also to realign its strategy. The first key event was the merger with the United Saudi Bank (USB) in 1999 and the second key event was the transfer of its management from Citigroup to local management.

4.3.1 Merger with the United Saudi Bank (USB)

In 1997, the sector underwent a major development when two small banks, the United Saudi Commercial Bank (USCB) and Saudi Cairo Bank (SCB), merged into a new medium-size bank named the United Saudi Bank (USB). While USB was restructuring and recovering previous losses, Samba merged with USB in 1999, forming one of the largest banks in the Middle East with a share capital of SAR 4,000 m. The merger not only formed the most profitable and one of the largest banks in Saudi Arabia and the Middle East, it also created a dynamic institution that rapidly started developing new products and producing better results. Table 4.3.I portrays some key indicators before and after the merger.

	Before		After	
	Amount	Sector share	Amount	Sector share
Total assets (SAR)	45,633 m	11.95%	77,034 m	19.05%
Share capital (SAR)	2,400 m	11.89%	4,000 m	17.37%
No. of branches	43	3.75%	80	6.69%
No. of ATMs	108	6.39%	198	9.82%
No. of POS terminals	810	5.37%	1,341	8.00%

Table 4.3.I Key indicators before and after the merger (Tadawul 2006; SAMA 2006)

4.3.2 Local management

The second key event which happened to Samba was the change in management in late 2003. Since its inception, Samba had been a joint venture bank between Citigroup, the single largest shareholder with initially 40% share, and Saudi nationals that owned the remaining 60%. Accordingly, the bank's name was Saudi American Bank (Samba) and Citigroup managed it as a local Saudi subsidiary. Although Citigroup's share had been reduced twice in the past - first in late 1991 when it sold a 10% stake (Al-Duhkeil 1995) and then in late 1999 following the merger with USB - Citigroup continued managing Samba until late 2003 when Samba concluded an agreement with Citigroup to complete the transfer to

local management. According to Samba's statement after the announcement of the agreement (BME 2003):

"Citigroup staff currently account for less than 1% of the bank staff, and in the years since inception the bank has built a strong and independent credit process and an independent technical infrastructure...that was autonomously developed in-house."

Because of the agreement, Samba renamed itself with its former acronym, Samba, and explained the move by simply stating, "The name Samba reflects the close relationship between the bank and its clients" (BME 2003). Moreover, Samba's BODs appointed a Saudi national, Mr. Eisa Al-Eisa, as the new Managing Director to replace the American Managing Director, Mr. Mike de Graffenried. Samba also modified its organisational structure by decentralising some divisions, such as Operations (see Figure 4.3.I). According to Samba's officials, "the name change was a natural thing for the bank to do in light of its change of ownership and management structure" (BME 2004). Following these changes, Citigroup announced in May, 2004 that it had reached an agreement to sell its 20% share in Samba to the Public Investment Fund (PIF)²⁶ (Citibank 2004), thus making it a fully owned Saudi institution.

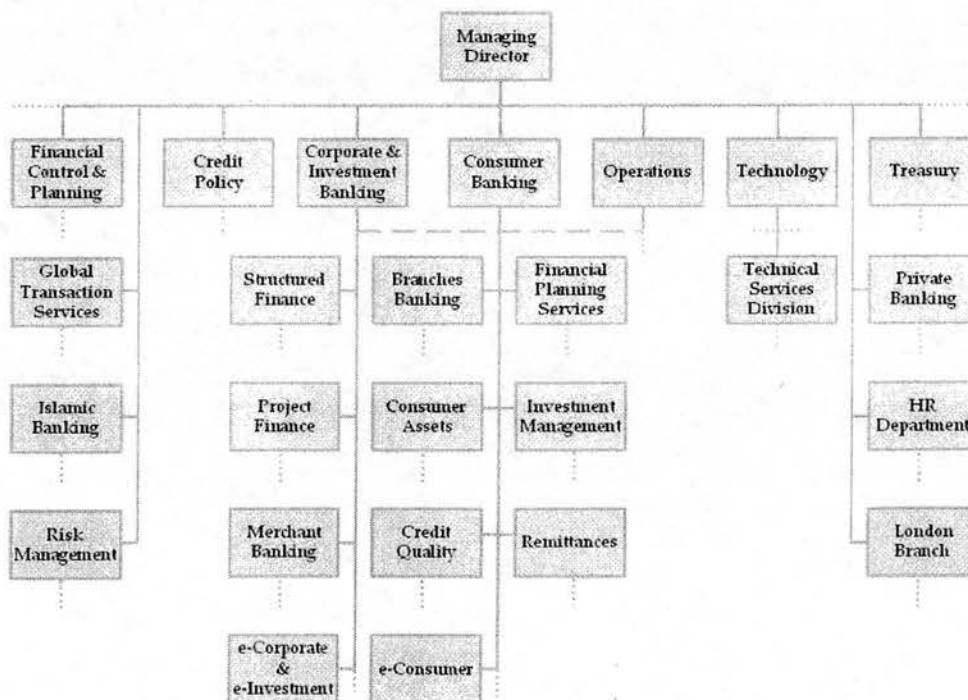


Figure 4.3.I Samba's organisational chart (Samba survey 2003; Samba 2006)

²⁶ The Public Investment Fund (PIF) is a governmental investment fund that was established by Royal Decree No. (M/24), dated 25-6-1391H to provide financing for certain productive projects that are of a commercial nature and are having a significant importance in developing the national economy, which the private sector lacks as the ability to under take alone, either because of insufficient experience or inadequate capital or both (MOF 2006).

Today, Samba is competing with 11 other banks in Saudi Arabia, including two Arabian banks, while keeping an eye on the new national Islamic bank, Bank AlBilad (AlBilad) as well as on a number of international banks recently arrived due to market liberalisation.

In order to meet the growing demand for Islamic banking, Samba has also started to offer new Islamic products and services, such as the AlSunbula Investment Fund and AlKhair card. Islamic banking, however, is a viable banking system that mainly aims to achieve “social and economic development through the delivery of financial services in line with the principles and teachings of Islam” (Metawa & Almosawi 1998: 229), where “banks may perform most, if not all, of their functions provided that they avoid the payment and receipt of interest” (Metwally 1997: 954).

Samba employs about 2,700 employees - of which 13% are outsourced employees - and operates about 65 branches dedicated to serving about 500,000 retail and 600 corporate customers. Such a customer base is no longer confined to the “elite class”, as Al-Duhkeil (1995, 78) stated, since the merger with USB and SCB opened access to new classes of customers, according to Samba’s branch manager. Samba increased its capital in 2005 by 50% (i.e. SAR 6,000) and today it is considered the second largest in terms of total assets, SAR 79,038 m, although it ranks fourth from the point of view of net income, with SAR 1,436 m (Tadawul 2006).

In terms of budget and number of operations, the Consumer Banking Group continues to be the biggest division, followed by the Corporate & Investment Banking Group. As we shall see, the provision of high-tech, specialised banking services is the cornerstone of Samba’s achievements. Currently, Samba operates 760 ATMs, 3,719 POS terminals, 3 global investment centres, and 28 speed cash centres. Samba has also launched its telephone, internet, and B2B banking services for both retail and corporate customers.

4.4 The development of Samba e-banking constituency

Samba’s executives are proud of an IT history that reflects a tradition and culture of innovativeness:

“One of the major strengths of our brand name is innovation. In the market and according to our research over many years, the perception of the Samba brand name is about innovation. We have always been counted as have as an advanced bank in terms of technology. This is because we know how to leverage the technology to serve our business needs and strengthen our strategic direction,” (e-Consumer Manager).

This section discusses the evolution of the Samba e-banking constituency by applying the conceptual lens of the “diamond of alignment” (Molina 1995). The diamond selected for the analysis is a two-layered intra- and inter-organisational diamond given that important features of the Samba e-banking constituency-building process are the result of inter-organisational interactions between Samba and other organisations. The discussion also distinguishes two distinctive periods in the evolution of the Samba e-banking constituency. The first period goes from the beginnings of Samba to the late 1990s

when the merger with USB occurred. This is followed by the second period that extends until today and, in which the Internet plays a major role. To highlight the differences between the two periods, the “diamond of alignment” (Molina 1995) is applied separately to each of the two periods.

4.4.1 Origins and first phase of Samba e-banking constituency

This section looks at the development of the constituency in the first phase, which goes from the beginnings of Samba to the late 1990s when the merger with USB occurred. The discussion follows the dimensions of the “diamond of alignment” (Molina 1995).

4.4.1.1 (I-II) Constituents’ perceptions, goals, actions and resources

Since its formation, Samba has embarked upon a conscious policy of technology and innovation that saw the first developments of e-banking. Thus, in the early 1980s, Samba acquired and implemented the core banking system of Citigroup, named DEFINE, after tailoring it to fit with the Saudi banking context. DEFINE furnished the business needs of Samba until the early 1990s when SPAN went live. In order to cope with the new technical features imposed by SPAN on all Saudi banks, Samba had to shift DEFINE to an open-system platform and upgrade its entire hardware facilities in 1995. This facilitated the integration of what was, until then, a largely fragmented IT system, with almost all divisions and departments using different front-office applications, such as Bloomberg, a financial markets information system, to handle its day-to-day operations.

During this period, Samba's general information and communication technology (ICT) literacy was highly compared to Saudi competitors, although it was less developed compared to international banks. The Technology & Operations Group (T&O) handled the technical and business aspects of Samba's technology, and received technical assistance from Citigroup Technology Group (CTG) and many external consultants. In the mid-1990s, CTG operated a network of 106 ATMs and 803 POS terminals, and it was developing an e-business platform for e-banking products and services. It launched a telephone banking service, SambaPhone, in 1996, and completed the linkage with SARIE.

Clearly, the Samba e-banking constituency developed substantially during the first phase, in a close interplay between intra- and inter-organisational relations. Not only a great deal of ICTs expertise came from outside. Also alignment with regulatory “standard” technologies, such as those of SPAN and SARIE infrastructures, helped shape the characteristics and evolution of its e-banking technology (see Alignment 4-4i).

4.4.1.2 (II-III) Nature and maturity of the technology

Information technology evolves continuously and there is always a frontier of emerging technologies and others that mature as their application becomes well proven. During the first phase, the Samba e-banking constituency relied mostly on proven IT systems acquired or conforming to systems from

external organisations. Thus, Citigroup's DEFINE system was followed by the open back-office system.

The latter used standard mature technologies provided mainly by IBM. Its hardware components involved a group of IBM servers running a group of specially developed applications. For Samba, however, its implementation was technically demanding in terms of investment and training. Therefore, the technical people were continuously training to gain the required new skills.

In terms of performance, the specifications of the open back-office system implied major cost/performance improvements in relation to DEFINE. For example, the average response time of an ATM transaction for a non-bank customer improved. Such performance enabled the bank's ATM network to provide more services to non-bank customers.

4.4.1.3 Alignment (1-1i) - Organisational governance

During the first phase, the Technology Steering Committee (TSC) has influenced development of the Samba e-banking constituency at the intra-organisational level. The IT decision-making process involves balancing the demands of both a highly centralised organisation and a culture of participation that follows a collaborative approach between IT and business. For any IT initiative to be approved by Samba, the T&O has to make an Internal MEP, a business case that provides the rational, estimated cost, proposed return and tools to measure the success of the initiative. The TSC, then, studies the internal MEP and decides whether to accept or reject the initiative. While it still existed, CTG influenced the initiatives as external consultant to the committee.

At the inter-organisational level, however, both SAMA and the Saudi Telecom Company (STC), the sole telecommunications provider in Saudi Arabia, influenced the constituency. On the one hand, the technical requirements of many proposed e-banking products and services should fit with the capabilities of the national communications infrastructure. Whilst on the other hand, any product or service has to meet certain criteria imposed by SAMA, which pursues, according to Al-Suhaimi (1998: 63), "a collaborative rather than a competitive approach among Saudi banks to the development of a common payments infrastructure ... ensuring a rational and consistent national strategy for payment systems."

4.4.1.4 Alignment (2-2i) - Target constituents' perceptions and pursuits

This dimension relates to the people and organisations Samba has been seeking to enrol behind its e-banking products and services. During the first phase, Samba was offering only three forms of e-banking: ATMs, POS terminals and telephone banking. In the intra-organisational environment, the back-office system was migrating from one platform to another and the technical aspects of e-banking were not yet completed. E-banking development was targeting a variety of constituents as it was lacking knowledge, the right technical people, optimal technologies, and investment. In order to face

such challenges, Samba built two strategic alliances with Indian IT firms to handle the development process.

In the market, however, the achievements with target customers were not encouraging as Samba's e-banking share was decreasing. On average, the bank's ATM and POS market shares decreased by 6.54% and 26.02% per year, respectively, during the first phase. This did not mean that Samba was decreasing the number of ATMs and POS terminals in the market. Rather, competitors were rapidly installing more ATMs and POS terminals than Samba was. All this meant a weakening of the alignment of Samba e-banking constituency with dimension 2 of the "diamond of alignment" (Molina 1995).

4.4.1.5 Alignment (3-3i) - Nature of target problem

This dimension highlights the problem the constituency had set for itself through the vision and objectives it was seeking to achieve. In the case of Samba, the vision behind the launch of e-banking was "open, quick time to market, security, and high quality" (IT Head). The main objectives were "to meet clients' needs, to improve the competitive position and image, to off-load transactions on branches, and to retain existing clients and acquire new ones" (e-Consumer Manager).

The realisation of these objectives through e-banking, however, involved some important issues. First was the "follower" approach taken by Samba, in using proven technology developed by others. Closely associated with this was the issue of the build-up of internal knowledge and expertise required by Samba. Samba was faced with a lack of knowledge as the optimal skills were not easily available in the market. Samba, however, was all the time gaining the required knowledge to pursue its own development later on.

Alignment (4-4i) - Interacting technologies/constituencies

This dimension highlights how the environment of interacting technologies and standards affects the development of the Samba e-banking constituency. Intra-organisationally, by 1997, the open back-office system was well aligned with the legacy systems. In addition, Samba implemented continuous training of its technical staff to align to the technical demands of the technology. It also implemented software enhancements to smooth the synchronisation of data. In this respect, the constituency had to respond to the problem of high training costs and lack of technical knowledge to deal with different technologies.

Inter-organisationally, as anticipated already, the Samba e-banking constituency had to align with the regulatory "standard" technologies, such as those of SPAN and SARIE infrastructures. SAMA "had chosen a leadership role in establishing an integrated and comprehensive electronic payments infrastructure while continuing to support traditional payment vehicles" (Al-Suhaimi 1998, 63). For almost a decade, SAMA promoted several national initiatives, such as automated clearance house

(ACH) in 1986, SPAN in 1990 and SARIE in 1997. The Samba e-banking constituency had to align with all of these initiatives if it was to develop successfully within the increasingly networked Saudi banking system.

4.4.1.6 Summary

During the first phase (i.e. before 1997), the Samba e-banking constituency-building process shows an evolution of capabilities from an initial almost complete reliance on external technology sources to the gradual development of internal capabilities through continuous training of Samba's own technical personnel. In other words, the Samba e-banking constituency largely implemented a "follower" strategy, with a fundamental role played by the inter-organisational dimension of the constituency-building process.

4.4.2 The present phase of Samba e-banking constituency

This section looks at the development of the Samba constituency in the present phase, in which the Internet and mobile telephony begin to play a key role in the provision of new e-banking products and services. The discussion again follows the dimensions of the "diamond of alignment" (Molina 1995).

4.4.2.1 (I-II) Constituents' perceptions, goals, actions and resources

With the spreading of the Internet in Saudi Arabia in the late 1990s, Samba started the development of its e-business platform and a middleware application. The new platform required the bank to re-upgrade its entire hardware facilities with very advanced and mature products. At the front-end, the bank inaugurated its e-banking products and services. In November 1999, Samba launched its first initiative over the Internet, Samba.com, comprising static web content that provided existing and prospective customers with information about products and services.

In 2001, Samba launched its Internet banking service for both corporate, SambaAccess, and retail customers, SambaOnline, and operated a short message service (SMS), SambaAlert, to update customers via their mobile phones with their banking transactions. In 2002, the bank furnished its customers with online national and international brokerage services, named SambaTadawul and SambaDirect, respectively, as the first Saudi bank to offer such services. The year 2003 witnessed the launch of SambaConnect, an Internet's payment gateway service between Internet shoppers and merchants. The use of SambaConnect is open for both Samba's customers and non-customers. eCare, an automated customer query-handling module, was another e-banking service introduced in 2004. In 2005, SambaTadawul has been modified to allow customers to trade at both Abu-Dhabi and Dubai's stock exchanges of the United Arab Emirates (UAE).

The organisational structure is more decentralised than that of 1997 with the T&O being split into two separate groups: IT Group and Operations Group. The IT Group continues to develop the e-banking while the Operations Group operates the e-banking. The business aspects of e-banking, however, are

done at the e-Banking Department, a new department created in 2001. The e-Banking Department has two sections: e-Consumer with the Consumer Banking Group and e-Corporate/e-Investment with the Corporate & Investment Banking Group. Each section handles the e-banking business development of its group and transfers its needs to the IT Group for technical feasibility and automation (see Figure 4.3.I).

Although the IT Group is no longer receiving technical assistance from CTG, general ICT literacy has improved significantly now that a new e-business platform, a new middleware system, new internal applications (e.g., e-Procurement & Travel and Expense), upgraded hardware facilities, 247 ATMs, and 2,132 POS terminals are in place. Since 2001, Samba has been launching almost all forms of e-banking products and services (e.g., SambaOnline and SambaTadawul). The development of such products and services absorbed a large portion of the IT Group's budget. Externally, the e-banking collaborative approach imposed by SAMA on Saudi banks since the mid-1980s is now in place. Moreover, SAMA has launched four new e-banking initiatives: Tadawul in 1999, eTrust Centre in 2002, SPAN2 in 2004 and SADAD, the national inter-bank checks payment and presentment system, in 2005.

4.4.2.2 (II-III) Nature and maturity of the technology

Currently, this dimension evolved since the creation of the e-Banking Department and the launch of more e-banking products and services. The mission statement of the e-Banking Department reflects its purpose (Samba survey 2003):

“Samba is online to enable people in Saudi Arabia to build their future based on greater financial autonomy at an individual and social level – a future that is modern, international, and distinctly Saudi. The online channel is the resource that equips Saudi society with the financial products, services, tools, experience and, most critically, the knowledge required to forge this strong new identity with confidence.”

E-banking products and services launched prior to 1998, such as SambaPhone and ATMs, continue to run on the open back-office system while those launched after 1998, such as SambaOnline and SambaTadawul run on the new e-business platform. The characteristics and maturity of the e-business platform help the bank to continue launching new products and services with transaction response time being the major performance specifications. The platform uses a combination of different standard mature technologies. It is also less dependent on IBM technologies than the open back-office system as many of its technologies are provided from different software vendors.

The hardware structure of the e-business platform, however, consists of a group of servers provided from different hardware vendors, such as Sun Microsystems and SUNFIRE 15K server systems. Although the e-business platform is not developing a new proprietary technology, in effect it is just that, as the synchronisation among its different software, hardware and networking technologies

constitutes a new one. However, the platform is technically demanding, as each technology requires continuous upgrading and staff training. Figure 4.4.I visualises the web-based version of Samba's e-business platform.

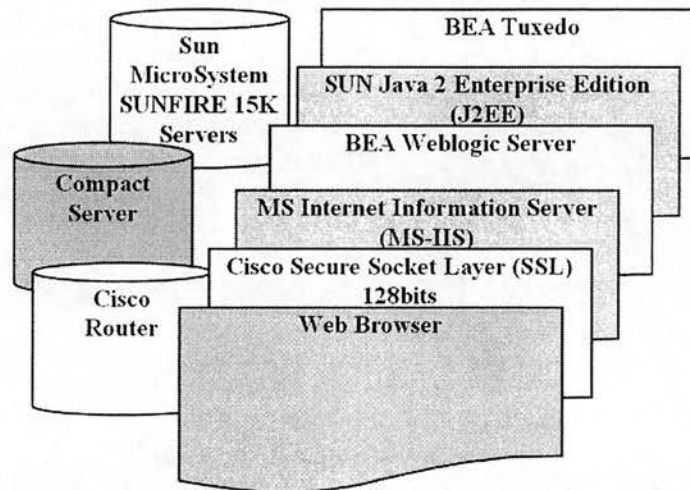


Figure 4.4.I Visualisation of Samba's e-business platform, web-based version (Samba survey 2003: Samba 2006)

Giving the characteristics and maturity of the e-business platform, the constituency seems to be aligned with the strategic opportunities and limits implicit in the particular characteristics of technologies. In this context, Samba's technology has achieved the ISO 9001 certification, a testament to its high quality standards (Samba 2006). Samba highlights the importance of its technology in protecting the competitive position:

"The accomplishment of the technology we use is crucially important in the competition. It depends on the time to market. As quickly as we develop and launch a product, as safely as we secure our competitive position," (IT Head).

4.4.2.3 (1-1i) - Organisational governance

The intra-organisational governance of the second (present) constituency building process, however, has evolved since 1997. Citigroup Technology Group no longer influences the IT decision-making process. Both the Technology Steering Committee and the new e-board, a virtual community, govern the process of IT decision-making. The e-board:

"Contains the bank long-term strategies and objectives, and it involves the CEO and all senior managers. All departments report to the e-board with regards to new initiatives and plans. For any IT initiative seeking approval, the Operations, IT Group, or both report to the e-board," (e-Consumer Manager).

The e-board adds value to the constituency building process as it works as co-ordination channel among all involved parties of an IT initiative. In other words,

“The business people knows exactly what are the new technologies and how to better utilise them and, at the same time, technology people know exactly the business goals and objectives and how effectively to achieve them,” (e-Banking Analyst).

However, the organisational structure of the e-Banking Department needs more power as it branches between the Consumer Banking Group and the Corporate & Investment Group. Therefore, “to effectively serve the business needs and leverage resources and capabilities, the position of the department is one of the areas that need to be changed,” (e-Consumer Manager).

At the inter-organisational level, however, SAMA continues its regulatory role through the establishment of the eTrust Centre, performing e-banking examination, and issuing specific guidelines regarding e-banking, such as Disaster Recovery Planning Guidelines, Internet Banking Security Guidelines and SARIE Operating Rules and Regulations (CPSS 2003). Internet Banking Security Guidelines, for instance, mandate the approval of any Internet banking product or service prior to its launch (SAMA 2001). Although SAMA makes all possible efforts for developing the e-banking products and services, there is a crucial need for a legal framework that governs not only e-banking transactions, but also all other e-business transactions.

4.4.2.4 (2-2i) - Target constituents' perceptions and pursuits

The present constituency building process, however, developed as the creation of the e-Banking Department and the offering of more e-banking products and services. Samba offers almost all forms of e-banking, including Internet, mobile, and brokerage services. In the intra-organisational environment, the technical aspects are completed and the necessary resources in terms of expertise, funding, facilities, and people are in place. Moreover, the present achievements are encouraging: E-banking is fully supported and accepted by all other groups, almost 16% of traditional transactions have been transferred to e-channels, and the unit cost of a single transaction went down by 70% since 2002.

In the market, the constituency-building aspects of Samba's e-banking are going well. The e-banking products and services reached encouraging achievements. E-banking channels account for nearly 90% of total branch volumes. SambaOnline achieved 1700% increase in the average number of transactions per day, and 300% increase in the average number of transactions per Customer in two years. SambaAccess obtained the Global Finance Award for the best Saudi Arabian corporate Internet bank. SambaDirect achieved a 300% increase in an average number of executed orders per day in two years. SambaTadawul achieved a 122% increase in an average number of transactions per day and almost a 50% increase in a number of executed orders in two years (Samba survey 2003). Transactions of SambaPhone grew by 41% over 2003. Samba was also the first bank to develop and offer the Saudi

Riyal Thrift Plan Payment processing solution for Saudi Aramco²⁷ (Samba 2005). Moreover, Samba has kept a constant share of ATMs in the sector (see Table 4.4.I).

Year		No. of ATMs	No. of cards issued	No. of transactions on SPAN	
				Total	Withdrawal
1999	No.	195	351,012	2,957,838	1,800,411
	sector %	9.82	7.54	6.33	6.33
2000	No.	157	341,127	4,745,841	2,485,672
	sector %	7.07	7.14	6.47	5.00
2001	No.	182	408,196	5,597,225	2,854,056
	sector %	7.10	7.34	5.35	4.65
2002	No.	232	430,223	6,664,443	3,519,550
	sector %	7.46	7.66	5.09	4.48
2003	No.	247	436,998	7,978,750	4,271,313
	sector %	7.11	7.47	4.71	4.78
5-Year Average	No.	111	203	393,511	5,588,819
	sector %	4.18	7.71	7.43	5.59

Table 4.4.I Samba's ATMs statistics, 1999-2003 (BTC 2004)

However, customers' acceptance of e-banking products and services are still low as only 16% of retail customers are banking via e-channels (e-Banking Analyst). Therefore, Samba modified its e-positioning strategy to increase the rate of Customers' acceptance. Figure 6.3.IV portrays the key aspects of such strategy.

²⁷ Saudi Aramco is a fully integrated international petroleum company with the world's largest oil reserves - over one quarter of the global total (Saudi Aramco 2006).

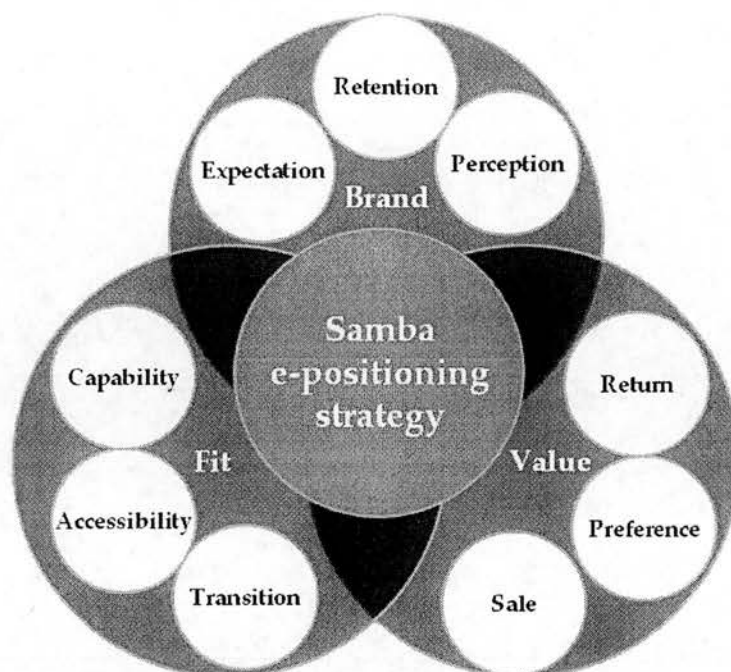


Figure 4.4.II Visualisation of key aspects of the Samba's e-positioning strategy (Samba survey 2003; e-Banking Analyst)

In the sector, e-banking products and services are facing important competition from other banks, especially AlRajhi and AlAhli. Although Samba, AlRajhi and AlAhli are the largest in terms of total assets and retail customers, AlRajhi and AlAhli hold 27% and 23% of SPAN, respectively, while Samba holds only 7%. Moreover, AlRajhi and AlAhli hold 20% and 17% of POS terminals whereas Samba holds only 9% (SAMA 2004). However, Samba was the first to offer e-brokerage services in the market (e.g., SambaDirect and SambaTadawul), and SambaOnline offers more services than that of competitors. Such competition criteria highlight the different focus of e-banking offered by Saudi Arabian banks. While AlRajhi and AlAhli focus on retail e-banking, Samba focuses on investment e-banking²⁸, a new value channel in the market.

e-Consumer Manager summarises Samba's strategy in tackling the e-banking competition:

"We have to keep running. We have to remain innovative. We have to keep watching what others are doing. We have to learn from the best practices. We have to look to the market trends. We have to be smart. We have to keep enhancing our

²⁸ An example is the administration of the process of IPOs. In October 2004, Samba offered its e-channels (e.g., SambaOnline) to its customers to participate in the shares floating of Etihad, a new mobile phone company. The subscription process met with some technical challenges that many customers' applications have not been executed. In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled "Strategies of Saudi banks... via the future's or past's eye!!", at Aleqtisadiah Newspaper (Issue No. 4269, Date: 19/06/2005). The article assisted the process of administering IPOs via e-channels in Saudi Arabia. See Appendix IV.

strategies. We have to put all of the efforts to make it successful. We have always looked for ways to measure our success. We have developed a key performance indicator and look to it every month to know our performance and trend.”

4.4.2.5 (3-3i) - Nature of target problem

The development of Samba e-banking products and services involves some important issues. The first issue is the approach taken by Samba. In some e-banking development cases, Samba followed the practices of other banks, as was the case with SambaOnline. In other cases, however, the bank took pioneering steps in the market when, for example, it launched SambaAlert and SambaTadawul as the first Saudi bank to offer such services. The second issue is the development time. It differed from one product to the other depending on the product’s functionality and requirements. For example, while the development of SambaTadawul took about 18 months, the development of SambaOnline took only six months. The third issue is the knowledge required. At the initial stage, development was the growth of knowledge, as the optimal skills were not easily available in the market. However, during the span of the development, the bank gained the required knowledge.

Samba’s e-banking received strong authority and support from many entities, including top management, TSC, SAMA, Consumer Banking Group, and Corporate & Investment Banking Group. As a result, the available technical capabilities, human and financial resources were well matched to the envisaged objectives. Consequently, the benefits envisaged or promised by providing e-banking were increased operational effectiveness, decreased branch loads, and increased staff capacity (Samba survey 2003). For example, Table 6.3.III shows that Samba’s ATMs provide other services than cash withdrawal. It also shows that Samba’s customers are active in banking via ATMs as the percentage of active e-cards is much higher than that of the sector.

Year	Withdrawal/Total transactions			% Active e-cards
	Ratio	Average amount (SAR)		
1999	Samba	61	1,382	87
	Sector	61	2,651	74
2000	Samba	52	1,329	97
	Sector	68	1,253	77
2001	Samba	51	1,274	98
	Sector	59	1,285	72
2002	Samba	53	1,187	97
	Sector	60	1,414	80
2003	Samba	54	1,154	97
	Sector	53	1,162	80
5-Year Average	Samba	54	1,265	95
	Sector	60	1,553	77

Table 4.4.II Samba's ATM usage trend (BTC 2004)

4.4.2.6 (4-4i) - Interacting technologies/constituencies

Since 1997, the state of this dimension has evolved. Almost all applications and databases of e-banking products and services have shifted to the e-business platform. The shift added value to the operation of the constituency. Transactions are now more efficient than before, as they are executed via the feature of straight-through processing. Moreover, the cost of development improved as the training of technical staff was mainly on e-business technologies and the interacting technologies turned out to be limited. Such results indicate that managing interacting technologies relies on the number and compatibility of these technologies.

The constituency's behaviour following the expiry of the technical management agreement with Citibank is an example. The scope of the behaviour included a wide range of dependencies that had been built over the last two decades, such as correspondent banking and commercial agreements, systems and networks and skill-based services. Examples include Citibank's proprietary tools and processes, communication networks segregation, revision of risk management policies and processes, and name change implications on forms, marketing materials, and documentation (Samba 2005).

4.4.2.7 Summary

Samba e-banking constituency-building process has clearly shown, during the present phase (i.e. after 1997), an evolution of capabilities from a gradual to a rapid development of internal capabilities through continuous development of new proprietary technologies. In other words, the Samba e-banking constituency has largely shifted to a "first mover" strategy, with a fundamental role still played by the intra-organisational dimension of the constituency-building process.

4.5 Conclusion

This chapter investigated the emergence and evolution of e-banking at Samba. It provided a brief overview of Samba and some of the key events shaping its developments. It then looked at the particular development of e-banking through the conceptual lens of the "diamond of alignment" (Molina 1995). Samba's healthy performance in financial and technical terms reveals that the strategies implemented are successful. The capabilities of Samba e-banking's constituency-building process have evolved commencing the first phase. However, challenges at both the inter-organisational dimension of the process, in particular the customers' constituent, and the intra-organisational dimension of the process, in particular the rewards for ICT-based innovators' constituent, still exist. This suggests further efforts have to be incorporated within the e-positioning strategy (see Figure 4.4.II) with the objectives of re-aligning both areas of challenge.

Chapter 5: AlRajhi Bank

5.1 Introduction

This chapter investigates the emergence and evolution of e-banking at AlRajhi²⁹. It provides a brief overview of AlRajhi and some of the key events shaping its developments in almost 25 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 5.1.I provides information related to interviews conducted at AlRajhi³⁰.

Interviewee	Date
CIO	August 2003 ³¹
e-Banking Manager	August 2003 ³²
User Service Department Manager	August 2003 ³³
Information Security Consultant	January 2004
e-Banking Manager	January 2004
e-Banking Manager ³⁴	January 2006

Table 5.1.I Interviews conducted at AlRajhi

5.2 Brief overview

AlRajhi opened for business as a joint stock company in 1987 out of the banking operations of AlRajhi Company for Currency Exchange & Commerce (ARCCEC), one of the oldest money exchanging businesses in Saudi Arabia. The initial capital of SAR 750 m increased to SAR 1,500 m in 1990 m, to SAR 2,250 m in 1998, to SAR 4,500 m in 2005 and finally to SAR 6,750 m in 2006. Although the capital is 100% Saudi since inception, the AlRajhi family continues to hold a key share in AlRajhi and provides for several of its senior executives (McAulay 2001). AlRajhi's objective is to practice banking and investment activities as per its articles of association, basic system, banking control regulations and the ministerial decision No. 1398, dated 15 November 1988. AlRajhi is

²⁹ An initial version of AlRajhi's case study can be found at: Al-Jadeed, M. & Molina, A. 2005b. Toward Saudi Arabian e-banking: The case of AlRajhi Banking & Investment Corporation, in Proceedings of the 4th IBIMA Conference on Information Management in Modern Enterprise. Lisbon: Portugal. 5-7 July. 203-211. An electronic copy from the paper is attached as a part of Appendix III with permissions from both the publisher, International Business Information Management Association (IBIMA), and the co-author, Professor Alfonso Molina.

³⁰ I wish to express my deep thanks AlRajhi's interviewees for their positive and open attitude to the research questions. Also, I wish to thank the AlRajhi's Finance Group for administering the survey, and all other groups and divisions who responded to the survey.

³¹ Pilot study

³² 31

³³ 31

³⁴ A different interviewee than that of August 2003 and January 2004.

practicing banking and investment for itself or on behalf of others within, or outside, Saudi Arabia (AlRajhi 2006).

AlRajhi has furnished the market with innovative Islamic banking and investment products and services that helped achieve better financial results than its rivals did. Accordingly, AlRajhi has not only won many international awards, such as the award of the International Convention of Islamic Banks for the world's best Islamic bank, but also awarded by the Bank Negara Malaysia an Islamic banking license to open branches in Malaysia (BNM 2004). Currently, AlRajhi employs and operates about 5,700 and 400 employees and branches, respectively, dedicated to serve about two million retail customers and only 50 corporate customers. It furnishes customers with a comprehensive array of e-channels, including telephone, mobile, Internet, and investment banking services as well as the largest networks of ATMs and POS terminals that amount to about 1,300 and 8,000, respectively (see Table 5.2.I)

(SAR millions)	For years ended December 31			
	1988	1993	1998	2003
No. of branches	25%	30%	32%	33%
Total assets	7%	10%	12%	12%
Total liabilities	7%	9%	12%	12%
Share capital	26%	13%	16%	9%
Shareholders equity	8%	13%	16%	13%
Net income from operations	49%	17%	23%	17%

Table 5.2.I AlRajhi market share positions, 5-year periods (Al-Dukheil 1995; Tadawul 2006)

5.3 Some key events

In order to understand the evolution of AlRajhi e-banking constituency, it is necessary to look at some of the key events that started 65 years ago and shaped the present e-banking constituency. The review distinguishes between two periods: before and after the formation of AlRajhi in 1987.

5.3.1 AlRajhi origins

AlRajhi origins started 65 years ago when Mr. Saleh AlRajhi formed a money-exchanging business in Riyadh. The business expanded not only in terms of physical presence to cover the entire country, including the pilgrim routes of Makkah and Madinah, but also in terms of operations to include gold trading. In 1978 the business was transformed to ARCCEC (Al-Dukheil, 1995). In 1980, ARCCEC opened an Islamic Division to provide banking products and services that would conform to Islamic principles. The opening of the Islamic Division met with the formation of a parent company to ARCCEC, AlRajhi Company for Islamic Investment Ltd, in London to provide advisory services for ARCCEC. It took ARCCEC over two years to build an enormous portfolio of Islamic investments amounting to over SAR 7,500 m (Al-Dukheil 1995).

ARCCEC's acceptance of deposits, despite operating as a money exchanging business for years, caused concern in SAMA that decided to clamp down on ARCCEC. This was followed by a

prolonged dispute as to whether ARCCEC, after its conversion to a bank, should offer Islamic banking products and services. SAMA finally issued in 1983 a banking licence to ARCCEC. During the first part of the 1980s, while the banking sector was facing a downturn in profits due to declining margins in a more competitive environment and the creation of loan loss reserves (Banafe, 1993), ARCCEC became a member of ACH (Al-Dukheil, 1995). ARCCEC had continued providing Islamic banking products and services until 1987 when it was renamed AlRajhi. This was followed in 1988 with floating AlRajhi's shares for public subscription and it became a joint stock company with an initial Saudi capital of SAR 750 m that increased gradually to SAR 4,500 in 2005.

5.3.2 Operations re-engineering project (ORP)

Although AlRajhi became a commercial bank in 1987, the money exchanging background of AlRajhi continued shaping the business during the first part of the 1990s. AlRajhi expanded its investments through trading and Murabaha³⁵ contracts, and embarked upon an extensive policy of expanding the number of branches, aiming to make a presence in "all level and in all geographical locations across the Kingdom," (AlRajhi 1991: 9). By 1995, the branches network consisted of 341 branches, 28% of the working branches in Saudi Arabia, and six regional offices. Such branches are characterised by modest design compared to branches of other Saudi banks and existed in all areas, in particular, in the centre of the country to target small depositors and low-paid manual workers (Al-Dukheil 1995; AlRajhi 1995).

Externally, however, Iraq attacked Kuwait in August, 1990, leading to extreme pressure on the liquidity of the banking sector. In one month, the sector's customers withdrew about 10% of the liquidity, converted it into foreign currency, and transferred it abroad. Such challenge forced SAMA to provide banks with access to additional liquidity through more liberal arrangements, placing additional SAR and foreign currency deposits with them and selling foreign currency in large volumes. Banks also coped well by liquidating their foreign assets (SAMA 1999).

The Gulf crisis was followed by a mini boom in the economy. The sector enjoyed a massive surge in deposits and domestic loans and advances of about 200% and 900% during 1991 and 1990–95, respectively. Moreover, other indicators, such as return on equity and return on assets, continued to be very positive with many banks making record profits during this period. The sector was also enjoying the expansion of the stock market's capital. During the first two years of the 1990s, banks used the optimistic sentiment in the stock market to raise substantial amounts of capital, and 50% of them

³⁵ Murabaha is an Islamic banking product defined as "the sale of goods at a price covering the purchase price plus the profit margin agreed on by both parties concerned, which transforms a traditional lending activity into a sale and purchase agreement, under which the lender buys the goods wanted by the borrower for re-sale to the borrower at a higher price agreed on by both parties," (Haron et al. 1994: 32).

increased their capital. Banks expanded their branch networks, introduced stronger management methods and new technologies, improved their profitability, and set aside large provisions for doubtful accounts. Trends also were evolving toward expansion in banks' capital and the number of banking institutions (Banafe 1993; SAMA 1999).

AlRajhi found that the future would be extremely unhealthy with the existing trends. Accordingly, AlRajhi's BODs approved, in 1994, a plan for the largest project in the history of AlRajhi. The project, Operations Re-engineering Project (ORP), aimed to enhance the operational effectiveness through re-engineering the entire activities of the value-chain. The implementation of ORP took five years commencing in 1995 and used external consultancy provided from A.T. Kearney, an American-based management consulting firm (Al-Ghamdi 1999).

Al-Ghamdi (1999) lists the sequential progress of the ORP implementation:

- ☐ Performing initial studies to gain more in-sight about AlRajhi's working environment.
- ☐ Developing the corporate strategy for the first time in the history of AlRajhi.
- ☐ Implementing a service quality program in regional offices and branches.
- ☐ Revising the role of the IT activity in the value-chain.
- ☐ Re-engineering the organisational structure and work-flow process for many divisions and departments.
- ☐ Revising the human resource activity in the value-chain and creating staff rewards, appraisals, and authority policies.
- ☐ Developing an IT strategic alliance with Elsag, an IT Italian-based firm, to develop ATTAJ, AlRajhi's value-chain automation project.
- ☐ Planning for EBDAA-1, an extension of ATTAJ that aims to improve internal business processes at some divisions within Head-Office (e.g., Operations Group) and regional offices.

ORP implied changes not only in the operational effectiveness, but also in the governance of AlRajhi. Mr. Saleh AlRajhi, the founder of ARCCEC, had been the Chairman while his brother, Mr. Sulaiman AlRajhi, had been the General Manager and Managing Director. In order to carry out ORP, the BODs appointed Mr. Abdullah AlRajhi, a young Saudi national who gradually took over many responsibilities in AlRajhi for about 20 years commencing a branch representative, as the CEO to replace his father, Mr. Sulaiman AlRajhi, who became the Chairman (see Figure 5.3.I).

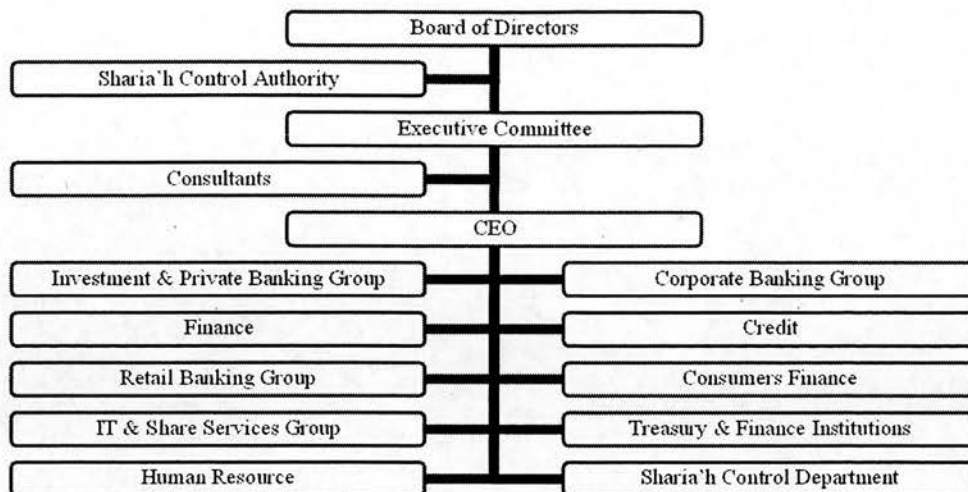


Figure 5.3.I AlRajhi organisation chart (AlRajhi survey 2003)

5.4 The development of AlRajhi e-banking constituency

This section discusses the evolution of AlRajhi e-banking constituency by applying the conceptual lens of the “diamond of alignment” (Molina 1995). The diamond selected for the analysis is a two-layered intra- and inter-organisational diamond given that important features of the AlRajhi e-banking constituency-building process are the result of intra- and inter-organisational interactions between AlRajhi and other organisations. The discussion also distinguishes three phases in the evolution of AlRajhi e-banking constituency: origins (1987-1995), development (1996-2000), and present state (2001-2006). To highlight the differences between the three phases, the “diamond of alignment” (Molina 1995) is applied separately to each phase³⁶.

5.4.1 Origins of AlRajhi e-banking constituency (1987-1995)

This section looks at the development of AlRajhi e-banking constituency in the first phase, which goes from the beginnings of AlRajhi to the mid-1990s when the re-organisation of AlRajhi occurred. The discussion follows the dimensions of the “diamond of alignment” (Molina 1995).

5.4.1.1 (I-li) Constituents' perceptions, goals, actions and resources

AlRajhi developed gradually during this period. Inter-organisationally, key market share indicators suggest that AlRajhi was a large bank. Market share positions amounted to 10% of total assets, 13% of net income, 30% of branches, and 25% of workforce. Intra-organisationally, the BODs were defining strict long-term policy and strategy that aimed to provide only Islamic banking products and

³⁶ In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “Re-engineering... AlRajhi as an example”, at Aleqtisadiah Newspaper (Issue No. 4631, Date: 16/06/2006). The article summarised some lessons from AlRajhi's re-engineering project. See Appendix IV.

services. Moreover, the fact that AlRajhi was a retail and investment bank, allowed both the Retail Banking Group and Investment Department to command and play larger economic and strategic roles than other groups and departments (Table 5.2.I; AlRajhi 1995; Al-Dukheil 1995).

Although AlRajhi was a large bank, the role of ICT was more modest. The long-term ICT policy and strategy were defined by the Executive Committee³⁷. The strategic priorities broadly concentrate on improving internal efficiency and assist e-banking services to gain and sustain local market share by saving customer's time and effort. This was to be achieved gradually and cost-effectively through the implementation of proven technology (e.g., ATMs) and the improvement of AlRajhi's ICT capacity (see Alignment 3-3i).

The Computer Centre was in charge of all technical aspects of e-banking products and services. The task of applications' development was done either internally (e.g., the development of the Branch Record Keeping & Recording System, BRKRS) or externally (e.g., the acquisition of GLOBUS, an IT system for improving investment services).

Externally, four different forms of e-banking products and services were in place: ATMs³⁸ in 1991, POS terminals in 1993, a non-automated share prices inquiry telephone in 1994, and a small number of local share trading halls in 1995. Table x provides AlRajhi's e-market share positions during this period. While ATMs were holding about 19% of the sector's ATMs, POS terminals grew from 4% in 1993 to 9% in 1995.

For years ended December 31								
Year	Branches		ATMs		POS terminals		e-Cards issued	
	No.	Sector %	No.	Sector %	No.	Sector %	No.	Sector %
1990	268	27	NA	NA	NA	NA	NA	NA
1991	289	28	87	19	NA	NA	193,578	35
1992	308	29	121	19	NA	NA	322,854	40
1993	327	30	145	19	51	4	389,633	38
1994	347	31	173	19	784	4	585,632	37
1995	350	31%	194	19%	1,089	8%	699,341	35%

Table 5.4.I AlRajhi's e-market share positions during 1990-95 (SAMA, 2006)

5.4.1.2 Nature and maturity of the technology

AlRajhi's technological system was consisting of a larger number of mature technologies. Most of such components were acquired from IT vendors while the remaining ones were internally developed by the Computer Centre. The hardware components were involving a mainframe at the Head-Office that were connected via a wide-area network (WAN) with six mini-computers located at the regional

³⁷ The Executive Committee consists of CEO and four members of BODs (AlRajhi 1995).

³⁸ AlRajhi's ATMs during the first part of the 1990s were cash dispensers (AlRajhi 1995).

offices. 70% of branches were vertically connected via a telephone line to the nearest mini-computer for data synchronising over night. The day-to-day operations at branches were performed via both BRKRS and GLOBUS. In general, the system was technically demanding as most transactions were processed manually. Such demand increased the risks to deliver in terms of both cost and time. In order to cope with the technical demand, technical people were furnished with technical skills through various audio and video training methods (CBT) located at the Computer Centre (AlRajhi 1995).

5.4.1.3 Alignment (1-1i) - Organisational governance

In the early 1990s, the constituent general meeting of AlRajhi formed the Sharia'h Authority and defined its rules and scope³⁹. Since then, both the Sharia'h Authority and the Executive Committee became main influencers on the e-banking constituency-building process. The Executive Committee has to approve the development of IT projects while the Sharia'h Authority has to ensure that the financial methods of transactions processing (e.g., calculations of return on investment) were compatible with the principles of Islamic banking. Negotiations between the Computer Centre and CEO were evolving to form more flexible ways than the case before for the IT decision making process (AlRajhi 1995).

At the inter-organisational level, the e-banking constituency-building process influenced by both SAMA and STC. On one side, any product or service had to meet criteria imposed by SAMA, which pursues, according to Al-Suhaimi (1998: 63), "a collaborative rather than a competitive approach among Saudi banks to the development of a common payments infrastructure ... ensuring a rational and consistent national strategy for payment systems." On the other side, technical requirements of many proposed e-banking products and services have to align with the modest capabilities of the national ICT infrastructure.

5.4.1.4 Alignment (2-2i) - Target constituents' perceptions and pursuits

The business, technical and constituency-building aspects of AlRajhi e-banking constituency improved gradually. Intra-organisationally, technical staff followed a strict training policy imposed by the Training Higher Committee⁴⁰. Training plans had to convince the committee that such proposed training plans would add a value to AlRajhi. Approved training plans were mostly conducted at

³⁹ The Sharia'h Authority was an independent entity consisting of a group of Islamic economists. Its prime role is to ensure that all banking products and services provided by AlRajhi are compatible with the principles of Islamic banking, which prohibit taking or receiving interest on deposits. Members of the authority were working on a non-pay basis until the mid-1990s when the BODs modified its organisational relationship with AlRajhi. The authority has been renamed to Sharia'h Control Authority. Its members have become AlRajhi's employees, having all rights and duties, including salaries and office premises (AlRajhi 1991; 1995).

⁴⁰ Formed in 1994, the Training Higher Committee was an executive committee that was linked organisationally to CEO. Its aim was to assess the feasibility of training needs of all divisions and departments of AlRajhi (AlRajhi 1995).

AlRajhi's Training Centre. This centre provides computer-based training materials and short training courses on technical aspects, such as ICT and e-banking services. Inter-organisationally, the process has enrolled some retail and corporate customers into the constituency through some forms of e-banking, such as ATMs. The enrolment also targets some IT vendors through acquiring hardware and software components (AlRajhi 1995).

Performance in the e-banking market was healthy as AlRajhi kept holding a major share. For example, on average AlRajhi held about 37% of the e-cards market. It also supplied about 70% of the branches with PCs to host BRKRS. Although such gradual improvement was aligned with the IT policy in terms of diffusion and efficiency, the modest national ICT infrastructure, especially in rural areas, was a challenge to the constituency-building process (AlRajhi 1995).

5.4.1.5 Alignment (3-3i) - Nature of target problem

Since its inception, AlRajhi embarked upon a conscious policy of expansion. The IT vision was "to save customers' time and effort," and the IT policy had been "the concentration of gradual progress of technologies adoption" based on cost-benefit criteria (AlRajhi 1995: 8). The case of buying the first set of ATMs from Samba in 1991 highlights the implementation of such IT policy. Samba pioneered ATMs in Saudi Arabia in 1989. When SPAN was operated in 1991, Samba preferred to replace its ATMs with modern ones. Rather than buying new ATMs, AlRajhi negotiated with Samba to buy Samba's used ATMs. AlRajhi bought ATMs for a competitive price. Such ATMs became operational in 1991 and they have not only furnished the business needs, but also aligned with the cost saving policy. Table 5.4.II provides a comparative profit and loss statement during 1997-99.

(%)	1997	1998	1999
Net Special Commission Income	0	0	0
Fees from Services	1.26	1.26	1.30
Exchange Income	5.79	9.42	7.38
Trading Income	0	0	0
Realised Gains on Investments, net	86.88	81.37	83
Dividend Income	0	0	0
Other Operating Income	6.07	7.95	8.32
Total Operating Income	100	100	100
Salaries and Employees Benefits	41.89	36*56	35.63
Rent and Premises	4.74	4.25	4.24
Depreciation	9.35	9.05	10.12
Other General & Admin Expenses	24.55	24.06	22.67
Provision for Credit Losses	23.04	26.08	27.34
Total Operating Expenses	41.14	45.82	46.81
Net Income from Operations	58.86	54.18	53.19

Table 5.4.II AlRajhi comparative profit and loss statement, vertical analysis during 1997-99 (Tadawul 2006)

5.4.1.6 Alignment (4-4i) - Interacting technologies/constituencies

Although the e-banking constituency had met with a conservative spending policy, the technological system developed gradually during this period. The launch of local stocks trading service to meet customers' need for investment mechanism was an example. AlRajhi furnished customers with a stock trading hall at 17 branches in major cities. Each hall equipped with a screen for broadcasting stock prices and a PC for processing stock trading orders. Both the screen and PC linked via a telephone line with GLOBUS at the Share Trading Room of the Head-Office. In turn, GLOBUS linked via a WAN with ESIS at SAMA. Alignment with interacting legacy systems was not without challenges. Processing trading requests had sacrificed performance. The risks to deliver in terms of cost were high, as technical people required continuous training to gain technical insight.

5.4.1.7 Summary

AlRajhi's e-banking constituency-building process clearly shows an evolution in all dimensions of the "diamond of alignment" (Molina 1995) during the initial phase (i.e. 1987-1995). Both the Executive Committee and Sharia'h Authority played a major role in shaping the intra-organisational level. The alignment with the regulatory standards of SAMA as well as the modest ICT infrastructure of STC shaped the inter-organisational dimension.

The AlRajhi e-banking constituency also showed progress with "target constituents" (i.e. Dimension 2), although not as strong as that of the "governance" (i.e. Dimension 1). The constituency weakly targeted both branches (e.g., a PC at 70% of branches) and technology developers (e.g., CBT methods) although it significantly targeted retail banking customers (e.g., 37% e-Cards). Clearly, the AlRajhi e-banking constituency was evolving at Dimension 2 with a great deal of action at the inter-organisational level.

On the other dimensions, the progress of AlRajhi e-banking constituency was more mixed. Alignment with "nature of target problem" (i.e. Dimension 3) of the "diamond of alignment" (Molina 1995) met with some challenges. Not only did the rapid expansion of branches meet with more gradual technological adaptation, but retail customers were also provided with used ATMs acquired from Samba. Although acquiring used ATMs enabled AlRajhi to establish its presence on the e-banking market, it only furnished customers with modest services as the ATMs were cash dispensers only.

A similar situation occurred in the "interacting technologies/constituencies" dimension (i.e. Dimension 4) of the "diamond of alignment" (Molina 1995). On the one hand, the AlRajhi e-banking constituency aligned well with the legacy systems in place. On the other hand, it slowly launched local stock trading halls at 17 branches (i.e. 5.2% of AlRajhi's branches) to make use of GLOBUS.

5.4.2 The development of AlRajhi e-banking constituency (1996-2000)

This section looks at the development of AlRajhi e-banking constituency in the second phase (1996-2000), where the implications of the re-engineering project played a key role in the provision of new

e-banking products and services. The discussion, again, follows the dimensions of the “diamond of alignment” (Molina 1995).

5.4.2.1 (I-II) Constituents' perceptions, goals, actions and resources

The market share of AlRajhi improved between 1993 and 1998, in particular, regarding net income and total assets, which amount to about 23% and 12%, respectively (see Table 5.2.I). The BODs continued drawing the long-term policy and strategy. The organisational structure became more decentralised with the Retail Banking Group being the largest in terms of budget and operations. New business lines, such as private banking and ladies banking, started to emerge. AlRajhi's products and services, which are all compliant with Sharia'h, have faced competition as other Saudi banks started to try such products and services. AlRajhi made an important effort to change the market perception of AlRajhi as a money-exchange business through the refurbishment of many branches with modern designs.

The results of the re-organisation project were also reflected in the technological aspects. Thus, AlRajhi formed the Operations & Systems Group to replace the Computer Centre. The main task of the newly born group was to automate the value-chain activities, ATTAJ (CIO). AlRajhi also continued holding a key share of the sector's ATMs and POS terminals - about 23% and 14%, respectively (see Table 5.4.I).

Such technical evolution produced a large IT system that required many divisions and departments to make the technology to perform its day-to-day operations, thus improving the general ICT literacy at AlRajhi. Plans were drawn to implement the new extension of ATTAJ, EBDAA-1, an IT system aiming to improve internal business process at some divisions at Head-Office (e.g., Consumers Finance Group), and regional offices (e.g., Jeddah Regional Office) (CIO).

5.4.2.2 (II-III) Nature and maturity of the technology

AlRajhi's technological system showed radical improvement during this phase. A group of servers connected to the mainframe at the Head-Office, while an upgraded WAN linked the bank's physical places (e.g., branches and ATMs) with SARIE. ATTAJ, means in English 'crown', is an umbrella for a group of IT applications that include, but is not limited to, branches' operations (SIB2000), customer databases (CIF), Murabaha & finance, credit & guarantees, HR, and general ledger.

Such applications were standard, mature technologies provided by AlRajhi's IT contractor, IBM-SBM. Their implementation brought about major improvements in general performance. For example, Payroll, the SARIE constituent at AlRajhi and enhanced the processing time of a payroll transaction from 28 days to 2 days. Similarly, performance improvements also occurred after the implementation of DPS250, a cheque settlement and presentment system. Both systems reduced operational cost (e.g., staff) as they automated the processes (Al-Jalad 1999; Al-Ghamdi 1999; CIO).

However, the trend in operational expenses rose. For example, the percentage of operating expenses to the operating income grew from 41% in 1994, to 47% in 1999 (see Table 5.4.II). The system also demanded continuous technical upgrading and training for both users and developers. For instance, Payroll performed monthly about 30,000 transactions. Any delay in processing would most likely force beneficiaries or customers to migrate to other banks (Al-Ghomlas 1999).

5.4.2.3 (1-1i) - Organisational governance

Intra-organisationally, the BODs replaced the Sharia'h Authority with the Sharia'h Control Committee. The Committee took responsibility for the macro Sharia'h control issues and was organisationally linked to the BODs. The BODs also formed the Sharia'h Control Department, directly linked to CEO. This Department took responsibility for micro Sharia'h control issues (AlRajhi 1995).

Accordingly, both the Executive Committee and the newly born Sharia'h Control Department influenced the e-banking constituency-building process. For each IT project, the Executive Committee and the Sharia'h Control Department had to approve its economic feasibility and Sharia'h compatibility, respectively. At the same time, the formation of the Operations & Systems Group and the assignment of a Vice Managing Director to lead the group, gave central strategic importance to the role of IT in the decision making and strategic planning processes.

Such combination positively influenced the short term development of the e-banking constituency-building process. The long-term development however was positively influenced by the IT Team, a new team formed during the mid-1990s to take an executive role in the re-engineering project, ORP. It involved a group of executives from AlRajhi, A.T. Kearney, and IBM-SMB, and had authority from the General Manager to supervise the project (Al-Ghamdi 1999).

At the inter-organisational level, SAMA continued its regulatory role of e-banking development in both the sector and the market, while AlRajhi maintained close alignment with these regulations.

5.4.2.4 (2-2i) - Target constituents' perceptions and pursuits

The focus during this phase was to build the intra-organisational capabilities with the aim to automate the back-office operations. The prime objective of ATTAJ was to enhance the operational effectiveness through automating the entire activities of the value-chain (Al-Ghamdi 1999).

The e-Banking Manager summarises AlRajhi's strategy of technological development of ATTAJ:

"The direction selected from the beginning was clean up your back yard, get your back-end ready, move to the branch systems, then move to the e-banking products and services, was very good and effective in eliminating many problems associated with integration and development tools."

At the intra-organisational level, AlRajhi's e-banking business and constituency-building aspects were evolving positively. The degree of acceptance among the AlRajhi departments was increasing, such as the use of DPS250 by regional offices or the use of SIB2000 by branches. One of the promotional strategies used by the Operations & Systems Group to promote ATTAJ to target constituents was AlRajhi's internal monthly magazine, AlRajhi World. For example, issue number 52 of 1999 was a special edition about AlRajhi's technical achievements. One of the important resources the constituency attracted during the process was the IT strategic alliances with IT firms, such as IBM-SBM, Temenos Systems and Elsag.

In the market, AlRajhi's e-banking constituency was gradually attracting target customers. Table 5.4.III shows AlRajhi's e-market share positions during 1996-2000. Thus, in 2000, AlRajhi's share of the sector's ATMs and POS terminals increased to 26% and 17%, respectively. On the other hand, the share of active e-cards decreased to 92% in 2000. Moreover, AlRajhi started to take advantage of the SARIE linkage by establishing e-agreements with some governmental agencies about payroll transference, such as the agreement with the Ministry of Education in 1999. The reason for such gradual progress was the strategic direction taken during this period: "clean up your back yard, get your back-end ready, move to the branch systems, then move to the e-banking products and services," (e-Banking Manager).

Year	ATMs		POS terminals		e-Cards	
	No.	Sector %	No.	Sector %	No.	Sector %
1996	247	19.92	1,814	12.35	994,253	40.04
1997	344	22.6	2,141	14.3	1,049,419	37.54
1998	396	23.45	2,127	14.11	1,367,344	37.48
1999	450	22.67	2,283	13.9	1,664,849	35.45
2000	566	25.47	3,143	16.96	1,912,214	40.04

Table 5.4.III AlRajhi e-market share positions (1996-2000) (BTC 2004)

5.4.2.5 (3-3i) - Nature of target problem

Intra-organisationally, ORP was the dominant problem. It posed a significant challenge. ORP took five years commencing 1995 and required significant changes in skills and re-training of staff on how to use the new applications. The following quote shows that the objectives of ORP were not well defined from the beginning as many objectives were overlapping:

"The objectives of the new organisational structure were to improve the productive efficiency, to improve the administrative and banking performance and to achieve the proper utilisation of human resources and thus raise the quality of services based on the principle of separation of banking operations from the functional areas of development and marketing of the banking and investment products and, at the same time, to give branches a greater role in marketing of the banking and investment products and, at the same time, to give branches a greater role in marketing of banking services for customers and thus raise the quality of services and enhance the Corporation's market share in the banking industry in response to the continued development in the banking industry" (AlRajhi 1995: 8).

ORP feasibility study recommended the development of a new system rather than to buy a ready-made Enterprise Resource Planning (ERP) system. This was due to the technology market's lack of core banking systems that are compliant with Sharia'h. Therefore, AlRajhi outsourced the development of ATTAJ to Elsag via IBM-SBM (Elsag Link 2004). The decision also helped ALRAJHI to focus its efforts on the business aspects. "Since we outsourced everything to IBM-SBM, we were not very much concerned about what was going on," (Information Security Consultant).

The User Service Department Manager summarises the formal mechanism between AlRajhi and Elsag during the development of ATTAJ:

"When we wish to implement a new ICT application, we provide our needs to one of our strategic partners. The partner develops the application that meets our needs. During the development process, we perform gap analysis with our strategic partner and customise the application to fit with the Saudi market."

During the development, ATTAJ received strong support and authority from top management, such as the formation of the Systems & Operations Group and the IT team. This strong support, together with the strategy to outsource the technical work to external developers translated into a successful alignment between Dimension 3 (even if the exact definition of the problem was also achieved during ORP) and the constituency's ability to deliver.

5.4.2.6 (4-4i) - Interacting technologies/constituencies

During the first part of this phase, AlRajhi was re-engineering its existing activities while Elsag was developing ATTAJ. Consequently, the technological system was blended with the legacy systems. Because ATTAJ was planned to be launched soon, AlRajhi had chosen to hold down enhancing the existing legacy systems with new banking applications. An example of slow development was the linkage with SARIE. Although SAMA launched SARIE in 1997, AlRajhi linked to SARIE in 1999. This was due to lack of technical capabilities being able to interact with SARIE features, while ATTAJ was under development.

In 1998, Elsag completed the development of ATTAJ and immediately displaced the legacy systems. The implementation took place in the first place at the Head-Office and regional offices. In order to operate the new applications provided by ATTAJ, AlRajhi employees were on continued training courses to gain the required skills. ATTAJ brought about many improvements to AlRajhi's day-to-day operations as well as to the Systems & Operations Group.

According to CIO, some of the implications of ATTAJ were that:

1. The Group has become a customer oriented and quality, focus player in the bank.
2. The automation of the value-chain activities improved the general ICT literacy.

3. The customers' database (CIF) has been holding 70-80% of customers' records rather than 20-30%.

5.4.2.7 Summary

AlRajhi's e-banking constituency-building process during the second phase clearly shows an evolution at all dimensions of the "diamond of alignment" (Molina 1995) with a major role played by the intra-organisational level, in particular the re-engineering process (i.e. ORP) that dominantly defined the "nature of the target problem" (i.e. Dimension 3). For example, outsourcing ATTAJ to Elsag via IBM-SBM fulfilled the technical requirements of the constituency even though it consumed about 5 years of development. Externally, for instance, the constituency made its EFT operational 2 years after the launch of SARIE. These characteristics suggested a gradual development of the e-banking constituency-building process from a modest role to a mainstream strategic role given to ICTs in the bank's development.

During this second phase, the e-banking constituency made significant progress in the alignment with Dimensions 1 and 4 of the "diamond of alignment" (Molina 1995) (i.e. "organisational governance" and "interacting technologies/constituencies"). The former evolved a great deal at intra-organisational level with the more powerful strategic role given to ICTs in the organisation, suggesting evolution from a significant to a strong alignment. The latter evolved more at the inter-organisational level (e.g., the launch of EFT) than at the intra-organisational one.

The progress of the remaining dimension of the "diamond of alignment" (Molina 1995) (i.e. "target constituents") during the development phase (i.e. 1996-2000) did not bring a significant improvement on the original phase (i.e. 1987-1995). Despite the fact that the constituency-building process enrolled some intra-constituents, such as regional offices via the implementation of DPS250, it faced challenges with some inter-constituents, such as retail customers, as the percentage of active e-cards decreased from 99% in 1999 to 92% in 2000.

5.4.3 The present state of AlRajhi e-banking constituency (2001-2006)

This section looks at the present state (2001-2006) of the development of AlRajhi e-banking constituency, in which the implications of ORP played a key role in the provision of new e-banking products and services. The discussion, again, follows the dimensions of the "diamond of alignment" (Molina 1995).

5.4.3.1 (I-li) Constituents' perceptions, goals, actions and resources

One of the prime issues during this phase is the international expansion of AlRajhi e-banking constituency for the first time in its history. In October, 2004, Bank Negara Malaysia has awarded an Islamic banking licence to AlRajhi to open branches and prove Islamic banking in Malaysia (BNM 2004).

Domestically, AlRajhi continued opening branches, expecting to reach 480 by the end of 2005. Of these 110 and 95 are devoted to sale centres and exclusive ladies banking, respectively (Khan 2004). The modest design of branches suggested by Al-Dukheil (1995) during the early 1990s no longer exists as most branches are characterised by modern design and customers' service representatives. Such developments pressured on the net income. AlRajhi's sector share of net income went down from 23% in 1998 to 17% in 2003 as a result of the increase in operating expenses (see Table 5.2.I).

Most importantly, the ICT function reached mainstream strategic role in the late 1990s when the task of drawing its long-term policy and strategy moved from the Executive Committee to the BODs. AlRajhi also launched two internal business process improvement systems: EBDAA-1 in 2001 and EBDAA-2 in 2002. The names of such systems reflect a vision of creativeness as EBDAA, in English means creativity. EBDAA-1 focuses on developing back-office applications (e.g., SIB2000) while EBDAA-2 focuses on building up front office applications.

Additional organisational changes took place. In 2001, AlRajhi replaced the Operations & Systems Group that supervised the development of ATTAJ, with the Shared Services & IT Group. This was followed by the formation of the e-Banking Department, under the Retail Banking Group, with a yearly budget of approximately SAR 2.5 m to handle business aspects of e-banking. Being under the Retail Banking Group indicates that the e-banking development efforts focus on retail rather than corporate banking (AlRajhi survey 2003).

Moreover, both the Retail Banking Group and Shared Services & IT Group, are headed by a single Vice Managing Director who led the development of ORP during the mid-1990s, indicating "that this banker should choose to shake up the bank's retail offering by means of technology solutions," (BME 2003). Figure 5.4.I portrays the existing organisational relationships between the Shared Services & IT Group, and e-Banking Department.

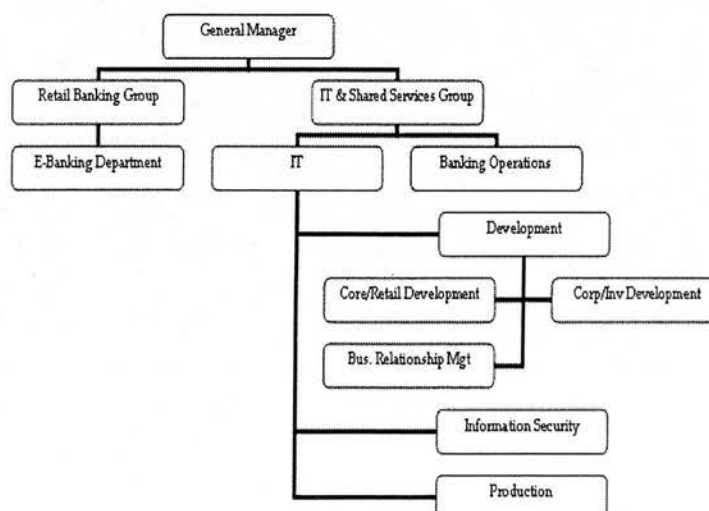


Figure 5.4.I Organisational chart of Shared Services & IT Group (CIO; User Service Department Manager)

5.4.3.2 Nature and maturity of the technology

AlRajhi entered the decade with a similar technological system as of that used during the late 1990s. The Mainframe is an IBM S/390 system and the Web site is hosted on an Intel Pentium Pro-Based Windows NT 4.0 Server, equipped with HostFront and Microsoft's SNA Server. The SNA Server was chosen for its security, scalability, reliability, and total integration with Windows NT (Farabi 2004).

Moreover, five IBM-EAX Servers and one IBM-Internet Security Systems (ISS) Centre connect the Head-Office with the regional offices and branches via WAN and local area network (LAN) technologies (Information Security Consultant). Standard mature technologies run a group of applications under the umbrella of ATTAJ, EBDAA-1, and EBDAA-2. The technical specifications gradually evolved as a requirement of the implementation of some new applications. For example, the implementation of the anti-money laundry (AML) application in 2003 required upgrading SIB2000 to its fourth version (AlRajhi survey 2003; AlRajhi 2006).

Although the development is mainly limited to either enhancing or upgrading the existing system, such a largely fragmented IT system is technically demanding:

“Any system that is supposed to provide 24x7 availability demands a better customer and technical support. On technical side a unit takes care of technical support and on customer side increased volume of available agents and smart IVR system,” (AlRajhi survey 2003).

However, the risk of failing to deliver the system in terms of anticipated performance is under control via the use of some risk management tools, such as Query Management System (QMS), an IT application aims to improve customers' service through analysing customers' complaints, and extensive training for technical staff (AlRajhi survey 2003; CIO).

5.4.3.3 (1-1i) - Organisational governance

At the intra-organisational level, according to the e-Banking Manager, any e-banking initiative has to follow a formal mechanism. The e-Banking Department initiates a project and develops a business case. Such a case has to be approved by the Sharia'h Monitoring Department for the Sharia'h compliance and the Audit Department for administrative feasibility. This is followed by the approval of the Executive's Yearly Meeting. Commencing the development of an approved initiative, the top management meets monthly within the initiative's host department to review the progress and take decisions on emerging issues. This process adds a culture of participation in decision-making to AlRajhi as “each department has to identify the impact of each strategic decision on its operation and build its strategy accordingly.”

Prior the launch of any product or service, AlRajhi assigned a managing team, which brings together members from both the business (e.g., Retail Banking Group) and the Shared Services & IT Group, to operate the product or service. The ATMs product, for example, has an owner from Retail Banking

Group (Product Owner) and an owner from the Shared Services & IT Group (Channel Owner) (see Figure 5.4.II).

		Product Owner		
		Current Account	Express Remittance	Mutual Funds
Channel Owner	Branch	✓	✓	✓
	ATMs	✓	✓	
	Telephone banking	✓	✓	
	Internet banking	✓	✓	✓

Figure 5.4.II AlRajhi Intra-departmental governance of e-banking products and services (User Service Department Manager)

At the inter-organisational level, SAMA continues its regulatory role through the establishment of the e-Trust Centre, performing e-banking examinations, and issuing specific guidelines regarding e-banking, such as Disaster Recovery Planning Guidelines, Internet Banking Security Guidelines and SARIE Operating Rules and Regulations (CPSS 2003). Internet Banking Security Guidelines, for instance, mandate the approval of any internet banking product or service prior to its launch (SAMA 2001).

Although SAMA makes all possible efforts for developing e-banking products and services, the e-Banking Manager highlights the challenge facing e-banking development in Saudi Arabia:

“We do not have a legal framework that governs the e-banking transactions... I think the lack of the legal framework for e-banking transactions negatively affect the growth and success in Saudi Arabia... In some cases, e-banking products and services are playing the role of catalysers of change in the sector. They facilitate and simplify the new changes in the bank. The bank believes now that it is very vital to use e-channels.”

5.4.3.4 (2-2i) - Target constituents’ perceptions and pursuits

The e-Banking Manager clarifies the evolution of the original vision and objectives of e-banking:

“The original vision and objectives were on course. However few things related mainly to prioritisation of product and service offerings have been modified. For example, we thought, as many other banks did, that [Wireless Application Protocol] WAP technology would fly but eventually it did not. Therefore, we had to offer our mobile phone banking earlier than its planned schedule.”

During the 1990s, there was a continuous process of transformation of target constituents into members of the AlRajhi e-banking constituency at both intra- and inter-organisational levels. The mainstream strategic role achieved by ICTs at AlRajhi and the market growth of ATM and POS services bear witness to this process (see Table 5.2.I). This process continued in the 2000s. The

gradual launch of e-banking products and services commencing 2001 gave AlRajhi many achievements (e.g., the Private Sector e-Initiative Award of Arabian Business Magazine⁴¹). Table 5.4.IV lists major e-banking milestones commencing 2001.

Launch Date	Product/Service	Description
May-01	AlRajhiPhone	Telephone banking
Apr-02	AlMubasher e-Retail	Internet banking, retail
Apr-02	WAP Service	Mobile phone banking
May-02	e-Insurance	Insurance bill payment
Jun-02	Tadawul	Internet local brokerage
Jul-02	e-Funds	Internet mutual funds
Oct-02	AlMubasher e-Corporate	Internet banking, corporate
Nov-02	i-Tadawul	Internet international brokerage
Aug-03	Bill payment gateway	Telephone bill payments
Sep-03	e-Government	Passport fee payments
Nov-04	e-Sahm SMS	Mobile phone local brokerage
Jan-05	e-Government	Traffic fine payments
Jan-06	G-Tadawul	Internet brokerage at UAE's exchanges

Table 5.4.IV AlRajhi major e-banking milestones (AlRajhi survey 2003: e-Banking Manager: AlRajhi 2006)

Intra-organisationally, the reputation of the new e-Banking Department is increasing although, in terms of e-banking development resources, the department receives permanent expertise and facilities from IBM-SBM rather than technical personnel and funding. From one side, e-banking is fully accepted and supported by other groups and divisions. AlRajhi also migrated about 75% of its transactions to e-channels by the end of 2003. The e-Banking Manager acknowledges the driver behind such intra-organisational achievements:

“This is due to the very strong performance measure tools implemented by the bank and aimed to ensure that projects are completed on time and within the given budget. In short, whatever we budget, we cannot exceed it.”

From the other side, the work-force at the department consists of only seven employees and the yearly budget is approximately SAR 2.5 m (AlRajhi survey 2003). The acquisition of AlAhli's e-Banking Analyst highlights one of the characteristics of AlRajhi's e-banking constituency in targeting developers. According to AlAhli's Head of Remote Delivery Channels, AlRajhi suddenly acquired in 2002 AlAhli's e-Banking Analyst to lead the e-Banking Department. The aim of such acquisition was mainly to furnish the market with the bill payment gateway as such project was initiated at AlAhli with STC. Such acquisition has moved the chance of pioneering the market with a bill payment gateway from AlAhli to AlRajhi. The reason behind losing the chance was that AlAhli made a mistake during the negotiation phase when it appointed a single employee to negotiate such a large contract with STC.

⁴¹ Panel of judges are mostly from international IT firms (e.g., IBM, Microsoft, etc.) (AB 2004).

During the development, the most important technical challenge faced by AlRajhi was to secure transactions. However, out-sourcing the development to IBM-SBM helped in not only eliminating such technical problems, but also acquiring technical requirements. According to the Information Security Consultant:

“We were mainly concerned about information security. For integration with legacy systems, this was a part of the applications development being done by IBM. Since we outsourced everything to IBM-SBM, we were not very much concerned about what was going on,” (Information Security Consultant).

The case in the market is more mixed. Although AlRajhi offers distinctive e-banking products and services, such as Salam, a pre-paid telephone card at telephone banking and ATMs, Watani, a program for buying local stocks on instalments, and portable ATMs, ATMs installed on vans to service customers during seasonal events, such as Hajj season, target customers who have not rushed to accept the e-channels and hence, join the constituency. Of the total number of retail customers, 2% use AlMubasher, 10-15% use Tadawul, and only 2 customers use WAP. Corporate customers also have a low degree of acceptance, with only 10-15% using AlMubasher e-Corporate. The low degree of acceptance has put pressure on AlRajhi as they compete with other Saudi banks, such as Samba and AlBilad⁴². For example, the acceptance rate of SambaOnline and SaibNet, the retail Internet banking service at Saib, as of 2003, is 25% and 35%, respectively. Indeed, AlRajhi tackles such competition through “looking for opportunities to send services to customers rather than asking the customer to come after them” (AlRajhi survey 2003). According to the e-Banking Manager:

“We always offer a product/service through all available e-channels, a strategy that is not always available with our competitors... [The aim is] to furnish clients with all their banking needs via their preferable e-channels.... We are focusing on clients’ retention more than attracting new clients. This is because Saudi clients migrate from one bank to another for reasons other than the availability of new products or services. The investment decisions of Saudi clients usually based on recommendations received from their trusted colleagues or friends rather than scientific reading and analysis of the market trends.”

However, relations with external developers remained strong and the market share for ATM and POS services continued to augment. The Information Security Consultant points out the importance of AlRajhi technology for forming a competitive advantage:

“As far as creating competitive advantage through technology is concerned, we might not have that much concern because, as a bank, we always implement the best quality available in the market without looking to its cost... In Saudi Arabia, I

⁴² AlBilad Bank (AlBilad) is similar to AlRajhi as both are wholly Islamic banks. In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “Path dependence... AlBilad as an example”, at Aleqtisadiah Newspaper (Issue No. 4645, Date: 30/06/2006). The article assumed that AlBilad is following the same path of AlRajhi, and accordingly, it compared AlBilad’s developments with that of AlRajhi. See Appendix IV.

believe that every one is using the same technology. This eliminates the importance of the technology used to create competitive advantage.”

5.4.3.5 (3-3i) - Nature of target problem

At the beginning of the decade, AlRajhi developed its e-strategy, aiming to schedule the offering of many e-banking products and services under the umbrella of EBDAA-2 (See Table 5.4.IV). The vision behind the offering can be seen in the following quotes:

“We are a people’s bank and would like to take whatever banking facility we can much nearer to our customers hence, save their time and efforts to perform their day to day banking needs. At the same time be involved in educating our customers in new technology-based channels” (AlRajhi survey 2003). “Our vision is to move our bank to the client’s side instead of moving the client to our side. We aim to allow clients to perform all their banking needs remotely” (e-Banking Manager).

The objectives were well defined from the beginning:

- ☐ To reduce mounting queues at branches
- ☐ To cut costs
- ☐ To provide customers with new and convenient tools
- ☐ To attract new customer base
- ☐ To be a leader in the market

AlRajhi outsourced the development of e-banking products and services to its IT strategic partners (e.g., Temenos Systems). Therefore, the role of the e-Banking Department has been identifying business needs, co-ordinating the development process and implementing the applications that occurred in conjunction with the Marketing Department. The development process received strong authority and support from the top management, and it initially cost approximately SAR 2 m and took about 6 months (AlRajhi survey 2003).

The e-Banking Manager summarises AlRajhi’s approach in developing e-banking products and services:

“Our e-banking development was based on a phase’s modules approach rather than a complete product approach. Based on such approach, our strategy was to develop the infrastructure of the e-applications, build them, identify the products and services offered by each application, identify the features of each product and service, determine the percentage of transactions performed via e-channels to the entire bank’s transaction, and then convince clients to use the e-applications...Frankly speaking, we always look to the best practices being done and try to customise and tailor the optimal one that fits with the bank strategy.”

Although the development process has been handled by IT strategic partners, it was not without challenges. From the technical side, the development process faced gradual reliance on external IT providers. The Information Security Consultant clarifies the relationship with one of the hardware providers:

“When it comes to technology, we normally go for IBM. We are an IBM’s shop and we believe in IBM. They do not let us down...We believe that the best quality available in the market is IBM because of its high quality technical support, availability, and other related issues.”

For the operational side the case also involved some challenges. For example, the sequential launch of e-banking products and services raised a concern at the Retail Banking Group on whether e-banking would slow down the expansion of the branches network (AlRajhi survey 2003).

5.4.3.6 (4-4i) - Interacting technologies/constituencies

EBDA-1 updated many branch applications and networking technologies (e.g., SIB2000). EBDA-2 installed new ATMs, POS terminals, kiosk terminals, and network switches. It also launched new e-banking products and services over many channels. The implementation of such projects led to a largely integrated e-banking technological system. A mainframe at the back-office is linked via networking technologies to an e-business layer that involves a group of different servers, a layer of security fire-walls (IBM-ISS), and a group of front-office applications (e.g., e-Sahm, a stock trading application via mobile phone).

The logic behind this structure is to decentralise data processing among different layers, thus enhancing the response time and increasing the availability of front-office applications. Such flexibility allows smooth accumulation of new e-banking applications even though it requires continued training for technical staff to gain operational skills. The technical implications of building such an e-banking technological system are presented in the case of bill payment gateway and CRM, e-government, and AlMubasher.

At the intra-organisational level, the e-banking technological system faced some integration challenges. For example, the implementation of AlMubasher required a linkage between the mainframe and the host server to synchronise data. Such challenge required AlRajhi to use additional tools (e.g., Farabi HostFront & HostFront Publishing) provided from an IT provider other than its strategic partners (Farabi 2004). Another challenge was the deployment of Oracle’s CRM, customer relationship management, application during 2004. AlRajhi aimed during 2004 to improve the customer service function through the deployment of Oracle’s CRM application. However, the entire features of Oracle’s CRM work more efficiently if it operates within Oracle’s e-Business Suite (Oracle 2006). Accordingly, AlRajhi deployed Oracle’s e-Business Suite although there was no crucial need for the other applications within the suite, increasing the operational cost of the customer service function.

The case of the e-banking technological system is technically less challenged at the inter-organisational level. Many projects required a minimal level of integration due to the low number of involved technologies. An example of success stories is the bill payment gateway with STC. The project allowed AlRajhi to offer a sole service in the market and processed about 80% of STC bills. Another example is the participation in the e-government framework through establishing a virtual link with the National Information Centre (NIC). The project helped AlRajhi to furnish customers with a payment vehicle of many governmental services, such as traffic fines (e-Banking Manager).

5.4.3.7 Summary

AlRajhi's e-banking constituency-building process during the present phase clearly shows an evolution at all dimensions of the "diamond of alignment" (Molina 1995) with a major role played by the intra-organisational level and shaped the characteristics of the present constituency.

5.5 Conclusion

This chapter investigated the emergence and evolution of e-banking at AlRajhi. It provided a brief overview of AlRajhi and some of the key events shaping its developments. It then looked at the particular development of e-banking through the conceptual lens of the "diamond of alignment" (Molina 1995). AlRajhi's healthy performance in financial and technical terms reveals that the strategies implemented are successful. The capabilities of AlRajhi's e-banking constituency-building process have evolved from the initial phase. However, a challenge at the intra-organisational dimension of the process still exists, in particular the constituent of effective mechanisms for socialising new mixes of technologies.

On one hand, this suggests that further efforts have to be incorporated within AlRajhi's value creation and capabilities building strategies with the objectives of re-aligning this area of challenge. On the other hand, Porter (1996) suggested that an organisation needs to re-think its existing competitive advantage strategy every ten years. The ORP has been in place since the mid-1995, accordingly AlRajhi needs to reinvest its strategy in order to secure its competitive position. Giving that AlRajhi is getting ready to expand internationally as in the case of the new branches in Malaysia. Moreover, SAMA is deliberating the sector as a requirement to the Saudi Arabia's membership to the world trade organisation (WTO), which started in 11th December 2005 as the 149th member of the WTO. The future will carry new challenges that will surely influence the development of AlRajhi. Learning from the lessons presented in this case study would help AlRajhi's repositioning within the sector.

Chapter 6: Saudi Investment Bank

6.1 Introduction

This chapter investigates the emergence and evolution of e-banking at Saib⁴³. It provides a brief overview of Saib and some of the key events shaping its developments in almost 30 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 6.1.I provides information related to interviews conducted at Saib⁴⁴.

Interviewee	Date
e-Commerce Head	January 2004
IT Group Manager	January 2004
CEO	October 2005
e-Commerce Head	January 2006

Table 6.1.I Interviews conducted at Saib

6.2 Brief overview

The origins of the national planned economic development in Saudi Arabia go back to the beginning of the 1970s when the Saudi government implemented the first Five-Year Development Plan of 1970-75. One of the objectives of the plan was to diversify the sources of national income though increasing the share of the other productive sectors (Al-Dukheil 1995). Accordingly, the Saudi government established a group of financial funds to finance privately owned development projects. These funds are governmentally owned funds aimed to provide financing for productive projects that are having a significant importance in developing the national economy (see Table 6.2.I).

Inception	Fund	Aim
1962	Saudi Arabian Agricultural Bank (SAB)	To provide soft interest-free loans to farmers to enable them to secure the agricultural sector prerequisites.
1971	Public Investment Fund (PIF)	To provide financing for certain productive projects that are of a commercial nature and are having a significant

⁴³ An initial version of Saib’s case study can be found at: Al-Jadeed, M. & Molina, A. 2005c. e-Banking value creation strategies: The case of the Saudi Investment Bank. In Proceedings of the IADIS International Conference WWW/Internet. Lisbon: Portugal. 19-22 October. Vol. 1, 118-129. An electronic copy from the paper is attached as a part of Appendix III with permissions from both the publisher, International Association for Development of Information Society (IADIS), and the co-author, Professor Alfonso Molina.

⁴⁴ I wish to express my deep thanks to Saib’s interviewees for their positive and open attitude to the research questions. Also, I wish to thank the Saib’s Financial Planning & Control Department for administering the survey, and all other groups and divisions who responded to the survey.

		importance in developing the national economy.
1971	Saudi Credit Bank (SCB)	To provide soft interest-free loans to citizens with limited financial resources to help them overcome their financial difficulties ⁴⁵ .
1974	Real Estate Development Fund (REDF)	To provide soft interest-free loans to citizens to help them construct their own homes and for investment purposes.
1974	Saudi Industrial Development Fund (SIDF)	To provide medium and long-term loans to industrial investments along with technical, administrative, financial and marketing advice to borrower enterprises.

Table 6.2.I Governmental-owned funds (MOF 2006)

This was followed by the implementation of the second Five-Year Development Plan of 1975-80. The development strategy of the plan was to lay the foundations of economic self-sufficiency in the future. One of the requirements for the implementation of this plan was to increase the role of the banking sector in the economic developments through providing loans and equity capital and increasing the branches and the share of Saudi ownership in commercial banks (Al-Dukheil 1995).

One of the results of these developments was the establishment of Saib, formally Saudi Investment Banking Corporation. Saib started operations in 1977 to provide investment banking and financial services to the Saudi market. In particular, it arranges the financing of quasi-government, private industrial sectors, trade finance products for imports and for the increasing Saudi exports. The initial share capital of SAR 30 m increased to SAR 90 m in 1979, to SAR 180 m in 1994, to SAR 720 m in 1994, to SAR 792 m in 1998, to SAR 858 m in 1999, to SAR 1,000 m in 2000, to SAR 1,100 m in 2001, to SAR 1,375 m in 2004, to SAR 1,718 m in 2005, and finally to 2,406 in 2006, about 5.21% of the Saudi banks share capital (Saib 2006).

The ownership structure helps Saib to establish the identity of a quality alternative to the larger banks. It is 19% owned by three Saudi commercial banks: AlAhli, Riyadh and Aljazira, 31.5% owned by two governmental agencies: the Pension Fund (PF) and the General Organisation for Social Insurance (GOSI), and 39.5% owned by Saudi individuals. The remaining 10% is owned by J. P. Morgan International Finance Limited (JPMorgan) (7.5%) and Mizuho Corporate Bank Limited (Mizuho) (2.5%) (Saib 2005). Such ownership structure rarely occurs in the Saudi banking sector as a bank (e.g., AlAhli) owns a share in one of its rivals.

Currently, Saib has about 582 employees, and operates 16 branches throughout Saudi Arabia dedicated to serve about 30,000 retail and 800 corporate customers (Saib survey 2003). It also

⁴⁵ In June 2006, the Saudi government approved the proposed Saudi Bank for Credit and Savings system. The system will extend the aim of the Saudi Credit Bank (SCB) to provide profit-free loans for small and new enterprises and owners of handicraft businesses to encourage them to continue running their works by themselves. Accordingly, not only its current share capital of SAR 959 m will be expanded to SAR 6,000 m, but also it will be renamed to become the Saudi Bank for Credit and Savings (SBCS) (SPA 2006).

operates about 100 ATMs and 267 POS terminals. Table II provides a five-year period for Saib market share positions. Although Saib's corporate policy has developed to provide retail banking services, it is still concentrated on corporate banking services, and in particular, medium-term financing (McAulay 2001).

%	For years ended December 31				
	1983	1988	1993	1998	2003
No. of branches	1	1	1	1	1
Total assets	4	2	2	4	4
Share capital	6	3	1	6	4
Shareholders equity	2	1	1	4	5
Net income	1	0	1	2	3

Table 6.2.II Saib market share positions, 5-year periods (Al-Duhkeil 1995; Tadawul 2006)

6.3 Some key events

In order to understand the evolution of the Saib e-banking constituency, it is necessary to look at some of the key events that started 30 years ago and shaped the present e-banking constituency. The review focuses on the developments of Saib's corporate policy in creating and sustaining the competitive advantages.

6.3.1 New focus

The corporate policy of Saib during the first ten years was being an assistant to the governmental-owned funds (e.g., SIDF) confirmed to be economically invisible. For example, return on total assets during the period of 1982-85 sharply declined from 0.74% to -0.33% (Al-Duhkeil 1995). In an attempt to strengthen its market position, Saib modified its focus and started to provide a full range of corporate banking products and services. The change indicated that Saib became a dual-competitor against two different groups: government-owned funds in financing business and commercial banks in corporate business.

Economic indicators at the end of the decade were not only very healthy but also proved that the modification in the corporate policy was economically visible. For example, the return on total assets during the period of 1985-1989 improved from -0.33% to 0.22% (Al-Duhkeil 1995). Although such performance was below the sectoral average of 0.48% to 1.17%, it indicated a positive trend toward more confidence.

Saib's chairman summarises Saib strategy in achieving such healthy results:

"Our emphasis throughout has been on breadth, consistency and predictability. Through focusing on risk-averse fee earning activities, we were able to aggressively build the aggregate of our total assets and off-balance sheet contra balances... We have long recognised, however, that symbiotic to the creation of shareholder value is the need to create value for our customers. In this regard, our challenge is therefore to assure and sustain competitive advantage. This we have achieved

through constantly re-aligning our business structure with a sharper focus to market opportunities and requirements,” (Saib 1991: 3-4).

6.3.2 Private banking

The second key event which occurred into Saib was the entry to the private banking business from the door of its corporate banking business. Saib’s chairman highlights the driver behind providing private banking:

“Our excellent understanding of our clients’ businesses enables us to tailor the most effective solutions to their banking needs. This enhances and sustains profitability by building long-term relationships with satisfied clients. We are determined a top provider of quality banking in the Kingdom of Saudi Arabia... In the pursuit of excellence our relative small size has enable us to provide that extra level of personal service and innovative prompt responses to customers’ needs which typify our business relationships at all levels,” (Saib 1996: 8).

The strong-relationship that Saib built with many corporate banking customers was the basis for providing private banking products and services. Saib started to produce private banking products and services, such as personnel finance, and target the staff of corporate banking customers (e.g., an Operations Manager of a corporate banking customer).

Although the strategy of targeting private banking customers through corporate banking customers was not the case all the time, in reality, it did. The strategy helped Saib to secure the competitive position in the private banking market against big players, such as Samba, as the corporate banking relationship was a requirement to obtain private banking products and services. Consequently, due to the fact that the need of a private customer for e-channels (e.g., an ATM) is less than that of a retail customer, Saib always maintained a small provision rate for its e-channels (see Table 6.3.I).

Year	Branches		ATMs		POS terminals		e-Cards	
	No.	sector %	No.	sector %	No.	sector %	No.	sector %
1990	7	0.71	N. A.	N. A.	N. A.	N. A.	N. A.	N. A.
1991	8	0.78	5	1.09	N. A.	N. A.	5,531	1.01
1992	9	0.85	8	1.24	N. A.	N. A.	1,668	0.21
1993	9	0.82	9	1.17	0	0.00	1,837	0.18
1994	10	0.88	11	1.20	68	0.73	8,039	0.51
1995	11	0.99	12	1.17	117	0.89	16,233	0.82

Table 6.3.I Saib e-market share positions, 1990-95 (BTC 2004)

6.3.3 Financial joint venture

The establishment of non-bank local financial institutions as a new investment approach was another key event. Saib by all indicators is a small bank competing with large ones. Although financial indicators were improving, Saib’s size compared to other Saudi banks raised speculation during the mid-1990s about its ability to survive in the sector. This suggested that Saib might merge or be taken over by one of the larger Saudi banks (McAulay 2001). However, Saib dismissed the issue when it

implemented a new approach to value creation through establishing two non-bank local financial institutions.

In the retail banking market, in 1999 Saib established the Amex Saudi Arabia Ltd. (Asal), a joint venture company equally owned by Saib and American Express. The company was to own and operate the American Express Card and merchant business in Saudi Arabia. At the corporate banking market, Saib partnered with Orix of Japan, the world's second largest leasing company, and established in 2001 the Saudi Orix Leasing Company (Solc). The company aimed to provide medium term asset financing to all productive sectors with particular emphasis to serving the needs of small to medium size enterprises (SMSs). Saib's CEO highlights the objectives of the deal:

"We found that if you want to be successful in leasing, you need to look at the smaller deals of a few hundred thousand riyals upwards...to do those deals would be costly, and hard to integrate with the larger deals of our corporate business...Of course with customers that do business with Orix, we also want them to do their banking with us," (BME 2004: 13).

In the national investment market, Saib acquired Naim Investments, a Saudi investment company focused on investment in the Saudi share market, in 2005 to become Saib's division for investment in the Saudi share market. The trend of establishing more joint ventures is going to continue. According to Saib's CEO:

"You'll see this bank going into more specialised joint ventures with global partners that we think can bring new products and way of doing things to the market. We're looking at opportunities with an insurance company that either belongs to the bank or that is a joint venture, a wealth management arm, and forfaiting and factoring," (Banker Middle East 2004: 14).

In summary, the focus on corporate and private banking businesses as well as the policy of establishing joint ventures, has shaped Saib corporate policy in creating and sustaining a competitive advantage since the mid-1980s (see Table 6.2.II). The question now is what are the implications of Saib's business focus on the emergence and evolution of its e-banking products and services? The following section aims to answer the question.

6.4 The development of Saib e-banking constituency

The role of Saib e-banking has always been to fulfil the business needs of Saib's divisions and departments by technological means. The approach that has been followed is through acquiring standard mature technologies from well-know IT vendors rather than developing new IT applications. Saib's IT Group Manager highlights the reason for following this approach:

"The bank attempts to purchase integrated packages rather than developing new ones. This is due to the cost/benefit in relation to the bank business objectives and resources. However, this behaviour is not without risk. Integrating different packages involves risk because different packages come from different vendors and

neither have they understood the other they may not cooperate... We do not take risk. We are talking about technology. If you would like to be in the leading edge, this is probably not the right country to attempt to be in. Innovativeness is a huge risk in the banking industry. We do not implement any thing unless it has been proven that it works some where else.”

In 1997, Saib developed its business and IT strategy (BIT) that aimed to fulfil the technological needs of the bank’s long-term objectives. The actual implementation of BIT started in 1998 through the introduction of many technical and social changes (IT Group Manager). This section discusses the evolution of the Saib e-banking constituency by applying the conceptual lens of the “diamond of alignment” (Molina 1995). The diamond selected for the analysis is a two-layered intra- and inter-organisational diamond given that important features of the Saib e-banking constituency-building process are the result of intra- and inter-organisational interactions between Saib and other organisations. Table 6.4.I represents a brief assessment to the state of the Saib e-banking constituency prior to the implementation of BIT.

(I-II) Constituents' perceptions, goals, actions and resources

A part from the Operations Group, the Computer Department operated MYDES, the corporate core banking system of JPMorgan, and some ready-made applications to handle day-to-day operations of Saib divisions and departments. Externally, the department furnished private banking customers with an automated brokerage hall at the Head-Office, ATMs, POS terminals and e-cards (see Table 6.4.III).

(II-III) Nature and maturity of the technology

The ten branches were occupied with modest ICT infrastructure that included a branch record-keeping application, PCs and a LAN. This connected via a VAN to a mini-computer at the Head-Office. The mini-computer hosted all IT applications, such as MYDES, ESIS, an electronic securities information system, and ON2, a central ATM/POS system. Both ESIS and ON2 connected to the inter-bank payment systems of SAMA.

Alignment (1-1i) – Organisational governance

JPMorgan provided MYDES with guidelines on how to customise it to fit in the Saudi banking context. SAMA required Saib to provide ATMs and POS terminals although such products are mainly designed for retail customers, a different customers segment of Saib. Technological projects, such as hardware upgrade, were based on a cost-benefit criterion in relation to the overall corporate strategy and had to be approved by the General Manager.

Alignment (2-2i) - Target constituents' perceptions and pursuits

The technical staff of JPMorgan provided an on-site operational assistance to MYDES. Major departments (e.g., Finance, Operations & Administration) used some financial software packages, such as IBMS, an international brokerage management system. Private customers were furnished with ATMs and e-cards that accounted for about 0.88% and 0.51%, respectively, of the sector share. Unlike other banks, the provision of POS terminals was limited to the sites of the bank's corporate customers (see Alignment 4-4i).

Alignment (3-3i) - Nature of target problem

The engagement of JPMorgan's technical staff had fulfilled the need for new technical staff. It also helped in the implementation of the cost reduction policy as the cost of such staff paid via a clearance method with JPMorgan's profit share. Externally, there was a one-year delay in the provision of POS terminals (see Alignment 4-4i).

Alignment (4-4i) - Interacting technologies/constituencies

MYDES, ON2 and other applications formed a fragmented system that scarified performance. This was due to the fact that each application was brought from a different vendor. An example was the delay in the provision of POS terminals (see Alignment 3-3i). Another example was that the use of ATMs had been limited to Saib's customers as the functionality of ON2 can not support inter-bank payment transactions (see Alignment 2-2i).

Table 6.4.I The state of the Saib e-banking constituency prior to the implementation of BIT

Clearly, the origins of the Saib e-banking constituency developed gradually, in a close interplay between intra- and inter-organisational relations. Not only a great deal of ICTs expertise came from outside. Also, alignment with the corporate strategy of being a corporate bank influenced and shaped the characteristics and evolution of e-banking technology. Table 6.4.I presented a brief assessment to the state of the Saib e-banking constituency prior to the implementation of BIT. The following is a discussion on the implications of the implementation of BIT, which goes from the late 1990s to today.

6.4.1 (I-II) Constituents' perceptions, goals, actions and resources

One of the aims of BIT was to give ICT more autonomy in the development of the Saib's corporate strategy. In 1998, the Computer Department split from the Operations Group and formed new IT Group to handle the technical aspects of the e-banking development. The operational and business aspects of e-banking are handled by the e-Commerce Department, a new department formed in 2002 as part of the Operations Group. Both of these two organisational entities fulfil the technical needs of not only Saib's divisions and departments, but also its joint ventures, Asal and Solc (see Figure 6.4.I).

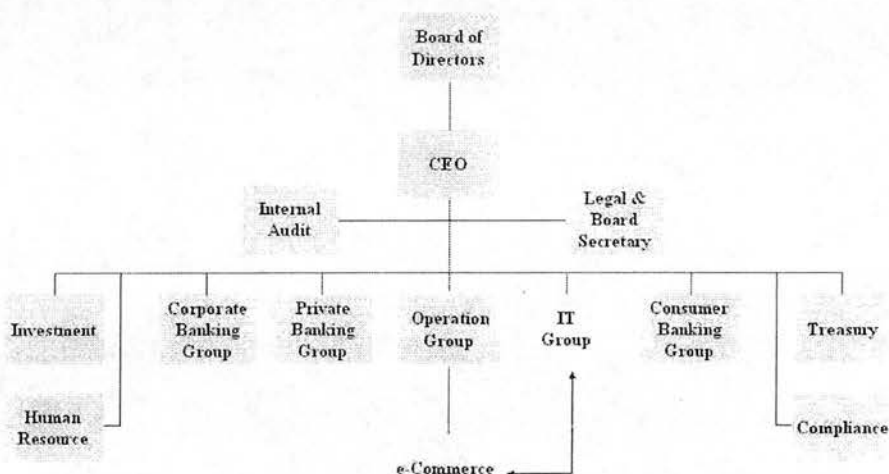


Figure 6.4.I Saib organisational structure (Saib survey 2003; Saib 2005)

The purpose of the IT Group is "to provide new products and services through the use of technology and to automate the existing products and services being provided to the bank's customers," (Saib survey 2003). The IT Group employs about 2% of the Saib workforce and acquires about 11% of the Saib annual budget. The group also invested about 30-40% of its annual budget in e-banking developments, such as ATMs and ALLOBank, Saib's telephone banking service (Saib survey 2003; IT Group Manager).

The IT Group fulfils the technical needs of both Saib and its joint ventures, Asal and Solc. This includes technology procurement, operating, maintaining, and training. Table 6.4.II provides ICT related information about Saib's main departments. Although the Investment Banking is the largest in terms of annual budget, its ICT literacy is less than that of other groups. Alignment 2-2i below discusses the reason for such a low level of literacy.

Group	Retail	Corporate	Investment	Treasury
Purpose	To service retail clients	To service corporate clients	To manage investment portfolios	To manage the funding, foreign exchange, asset-liability, and derivative positions

Workforce (%)	3	11	1	2
Budget (%)	11	20	31	15
Strategic role	Yes	Yes (the control of approximately 40% of the bank's assets)	Yes	Yes
ICT applications	Equation, LETS, IBMS, MIDS	Equation, LETS, IBMS, MIDS	Reuters, Bloomberg	Reuters, Bloomberg
Relationship with IT Group	Strong	Normal	No relationship	Strong

Table 6.4.II ICT related information for Saib main departments (Saib survey 2003)

The service agreements between Saib and both American Express and Orix of Japan specify that Saib provides technical assistance to Saib's joint ventures, Asal and Solc. Throughout such agreements the IT Group processes all merchants' credits and payments of Asal and Solc and integrates them into the IT system of American Express and Orix of Japan, respectively.

Externally, Saib furnishes customers with many forms of e-banking products and services, including ATMs, POS terminals, e-cards, e-bills payment, internet banking, and ALLOBank. They are mainly characterised by customer orientation and efficiency enhancement. The main performance specifications of these products and services are the cost of a transaction, volume of transactions and level of customers' fulfilment.

In general, the formation of the IT Group and e-Commerce Department as well as the provision of the IT Group outside the boundaries of Saib (e.g., Asal), evolved the role of ICT within the Saib e-banking constituency. However, the strategic role of ICT is still lower than that of other Saudi banks as the task of defining the long-term ICT policy and strategy is handled by the CEO rather than the BODs (see Alignment 1-1i) (Saib survey 2003; E-Commerce Head).

6.4.2 (II-III) Nature and maturity of the technology

The implementation of BIT implied changes not only on the organisational aspect but also on the technological one. "From this point, the bank has a technical infrastructure that can build on...Nearly everything is being digital line," (IT Group Manager).

The mini-computer of the early 1990s has been replaced with a group of IBM-AS400 i-Series servers and the underlying infrastructure became TCP/IP that works on a high speed WAN. Equation, an integrated banking system provided from a British software company named Misys, replaced MYDES. The main different between the two systems is that the older supports corporate banking operations only while the newer supports retail, corporate and treasury banking operations within a single platform. Moreover, the technical features of ON2 have been extended to allow future provision of ATMs and POS terminals. To fulfil the business needs of divisions and departments, the IT Group

also integrated many departmental systems to Equation (see Alignments 2-2i & 4-4i). Figure 6.4.II portrays the structure of the Saib technological system.

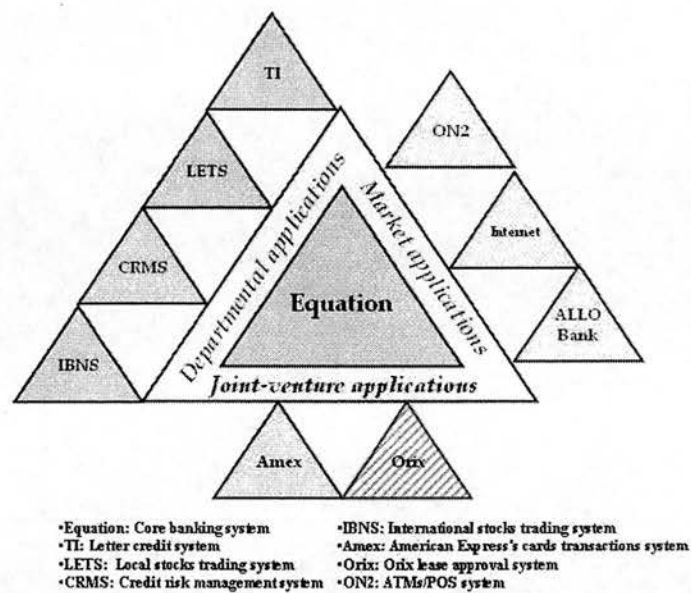


Figure 6.4.II Saib technological system (IT Group Manager)

Figure 6.4.II shows that the main characteristic of this structure is to cluster transactions in accordance with the beneficiary division or department. For example, TI, a letter credit system used by the Credit Division, is isolated from other Equation's systems in order to minimise the traffic of transactions to and from Equation. This clustering enhances the performance of data processing and fully optimises Equation and its related hardware and networking components. Accordingly, it implies major cost-performance improvements in relation to the previous systems and enables the provision of a completely new service.

An example of performance enhancement from decentralising the structure is illustrated through the case of the Internet banking technological sub-system (see Figure 6.4.III). The major performance specification of the system is the ability to support a customer-base of up to 15,000 Internet banking customers with sub-second response times. Although such performance specification does not imply major cost-performance improvement as the internet banking service was not available on MYDES, it does enable the provision of a completely new service. Customers now can manage their different accounts with Saib, Asal, and Solc through a single virtual channel.

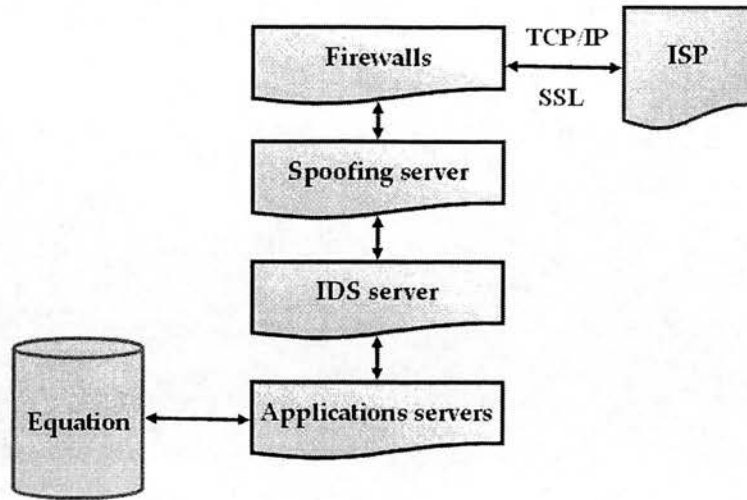


Figure 6.4.III Saib Internet banking technological sub-system (Saib survey 2003)

The build-up strategy of such decentralised fragmented technological systems is not without risks. For example, Saib's Internet banking technological sub-system brought some financial and technical risks although the specifications did not evolve in the course of the development. InfoSys, one of the global IT vendors, delivered one of the technical components of the system four months behind the schedule. This delay required the IT Group to pay an extra 20% of the system budget to cover the extension of the contract with the IT developers. The system also required the IT Group to train its staff on new programming languages, such as Java, and hire new staff.

6.4.3 Alignment (1-1i) – Organisational governance

Saib CEO is proud of Saib governance that reflects its culture:

“As well as offering genuinely different products, there's also the matter of culture and service. Sometime ago we adopted a simple, flat management structure, and we are deliberately approachable for our customers. This culture adds huge value to the bank in a society where personal relationships are so important... People don't like officious banks. We found our approach really bore fruit when we launched into retail lending, as [the entire] banks offer 20 or 24 times salary, all require salary transfer, and all offer tenors of five to six years. But we saw our consumer loan portfolio shoot up to SAR 2 billion in just 18 months,” (BME 2004: 14).

The nature of Saib governance is positively reflected in the style of management. The decision-making process is a mixture of a highly centralised management and a culture of participation. The IT Group reports directly to the CEO, eliminating any cultural difference either in the vision or perception of the role of IT between the two parties (E-Commerce Head; IT Group Manager).

However, the task of defining the long-term ICT policy and strategy is handled by the CEO rather than the BODs. The executive and the middle management are responsible for executing the policy and strategy (Saib survey 2003; E-Commerce Head). This suggests that the strategic role of ICT is lower than that of other Saudi banks (e.g., Samba, AlRajhi).

The IT decision-making process on the other hand, follows a formal mechanism. In the event of an IT initiative, in order to be approved by the CEO, the IT Group has to transfer the initiative to a business case. This is followed by a business plan that identifies the aims, objectives, involved groups, delivery times, and required resources. The CEO usually consults external consultants for advice and recommendations prior to taking the final decision (see Alignment 2-2i). When the initiative is approved, the CEO and involved groups (e.g., Corporate Banking Group), review the development progress of the initiative with the IT Group through monthly management meetings and informal discussions.

Although the IT decision-making process seems less complicated than that of retail banks, such as AlRajhi, in such a way it has no BODs involvement, it is negatively influenced by the nature of the corporate banking business. It forms a challenge to the success of an e-banking service as providing a corporate service (e.g., corporate financing) requires approval from many departments (e.g., Credit Control, Corporate Department) (see Alignment 2-2i). Consequently, it requires a virtual linkage among all involved departments, which increase the cost of e-banking development (see Alignment 3-3i).

The IT Group Manager highlights the difference between the corporate and retail banking business:

“The corporate bank generally has multiple levels of authorisations before any thing is executed. This is exactly the opposite of straight-through processing. From cultural perspective, the introduction of straight through processing will be a cultural change for much of the corporate operations. This means that they have to quantify the conditions under which something can be automatically executed, which they use not to do.”

Inter-organisationally, the e-banking constituency-building process is influenced by Saib's joint ventures, Asal and Solc, the national ICT infrastructure and SAMA's inter-banks payment systems (e.g., SARIE, the national EFT network). For Saib's joint ventures, the operational agreement between Saib and American Express on running Asal cards system, for instance, requires that any enhancement to the feature of the system has to be approved by American Express. Similar agreement is also in place with regards to Solc system. Such agreements negatively influenced the customisation of Asal and Solc systems to fit with the Saudi market context (see Alignment 4-4i).

The second external influence is the national ICT infrastructure of the STC. Two years ago, for example, Saib completed the development of an e-banking service. For information security purposes, the service required a 2 G-bit bandwidth. The STC could not deliver such bandwidth although it had such a product. The reason was because “STC could not organise its marketing and operations in order to sell the line to us. The STC needs to improve its data communications infrastructure as well as its marketing skills. It should also deliver huge amounts of bandwidth,” (IT Group Manager).

As of the case with other Saudi banks, Saib e-banking constituency-building process is also influenced by the evolution in the Saudi banking sector. The Vice Governor of SAMA lists some recent initiatives that aim to develop the Saudi banking sector⁴⁶:

1. Introduction of new measures to enhance the growth of mortgage financing by commercial banks.
2. Approval of the opening of a number of GCC banks (e.g., Emirates Bank) and more licenses to international banks (e.g., Deutsche Bank) are pending.
3. Introduction of the insurance law which provides the legal framework for the development of this sector.
4. Introduction of the Capital Markets Law (CML) to facilitate the development of a corporate bond market and other instruments as well as strengthen the operations and efficiency of the stock market.

6.4.4 Alignment (2-2i) - Target constituents' perceptions and pursuits

The vision behind the launch of e-banking was to modify the image of Saib as an innovative niche financial institution. The BIT, which has been in place since 1999, draws four main objectives for Saib e-banking products and services. First objective is to maintain the customers' base through providing innovative banking solutions. The second objective is to increase profitability through decreasing the operational expenses of physical channels (e.g., branches). The third objective is to make e-banking a cross-selling channel for the products and services of Saib's joint ventures (e.g., Amex cards). The fourth objective is to provide products and services locally and internationally (Saib survey 2003).

Saib has been building its sociotechnical capabilities since the late 1990s and the implementation of BIT. Equation and its related components (see Figure 6.4.II), the e-Commerce Department, the IT Group, and a group of e-banking products and services (e.g., ALLOBank and AswaqNet) are all results of the constituency-building process. Nowadays the technical aspects of the e-banking products and services are complete. Given that Saib is mainly a corporate bank; the achievements are well gained at the retail banking market as Saib has kept the same share of e-market since the early 1990s (see Table 6.3.I & Table 6.4.III).

⁴⁶ A speech by SAMA's Vice Governor at the meeting of the MENA Region. Washington DC. April 7-8 <<http://www.sama.gov.sa/en/news/2004-05/MENA%20Conf%207-8%20Apr%2004.pdf>> 14.05.2005

Year	Branches		ATMs		POS terminals		e-Cards	
	No.	sector %	No.	sector %	No.	sector %	No.	sector %
1999	13	1.09	24	1.21	179	1.09	38,645	0.82
2000	13	1.1	29	1.31	221	1.19	9,882	0.21
2001	13	1.09	49	1.91	264	1.22	9,015	0.16
2002	15	1.25	74	2.38	286	1.18	28,899	0.51
2003	15	1.24	94	2.71	267	1.06	48,112	0.82

Table 6.4.III Saib e-market share positions, 1999-03 (BTC 2004)

Net income from the retail banking business is also healthy. Figure 6.4.IV shows Saib net income (SAR in millions) by business segments for the last three years. Although Saib is focusing in corporate and treasury banking, the net income from retail banking is rapidly increasing while that from other segments is facing challenges.

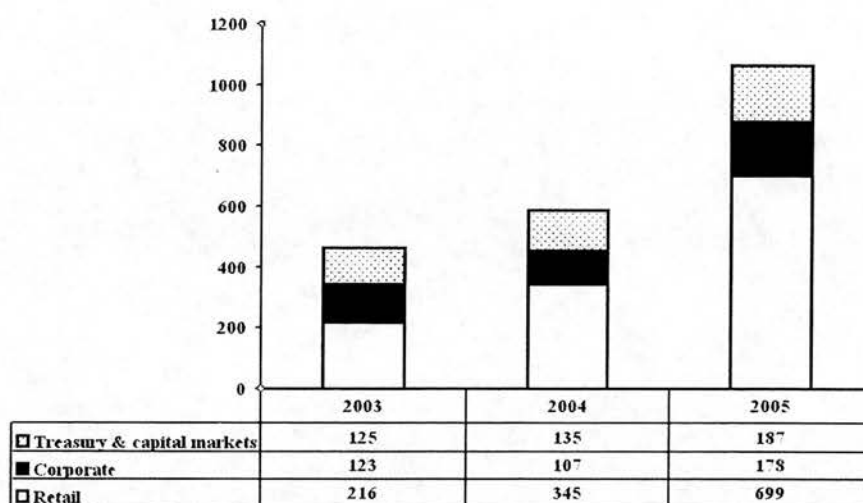


Figure 6.4.IV Saib net income by business segments during 2003-05 (Saib 2006)

Table 6.4.IV and Figure 6.4.IV show that net income from corporate banking fluctuated during the last three years. The reason for this challenge is related to the multiple levels of authorisations surrounding the financing and investment decisions of corporate banking customers (see Alignment 1-1i). Tackling this challenge was the reason for the 2-year delay in the provision of the corporate version of Saib Internet banking⁴⁷. The IT Group Manager illustrates a technical challenge occurred during the development of the Credit Risk Management System (CRMS) for the Credit Control Group:

“In fact, for corporate banking [straight-through processing] is very complex and this is way we have Credit Risk Management System (CRMS) that attempts to simplify this complex relationship and present ‘go/no go’ decision. So, if the CRMS

⁴⁷ Retail Internet banking and corporate Internet banking have been offered in June 2002 and April 2004, respectively (E-Commerce Head).

has all the information that is needed, it actually can do the 'go/no go' decision. But the big risk is that does it have all the needed information? For retail banking, this process is very simple and easy... So, the challenge is turning a formally manual task to a fully automated straight-through process. This is the big challenge, straight-through processing."

The business and constituency-building aspects are going well inside Saib. The provision of LCS and LETS in 1999 helped the Credit Group to perform its day-to-day operations in an efficient way. The launch of CRMS, Sterling and IBNS also helped other divisions, such as the Credit Finance Group to increase the overall all performance (see Figure 6.4.II). Such applications indicate that e-banking offerings are intra-organisationally well accepted and supported, and thereby enhance the reputation of the IT Group among Saib's divisions and groups on the group's ability to fulfil the technological needs of Saib (Saib survey 2003). The availability of the necessary resources in terms of people, expertise, funding, and facilities that had been offered by BIT since 1999 helped the IT Group to build such a strong internal image (see Alignment 3-3i).

The business and constituency-building aspects of Saib are evolving well in the market. Since the launch of the services, the number of retail customers using ALLOBank and Internet banking has grown substantially to 25% and 35%, respectively. However, the number of retail customers using ATMs and POS terminals was the opposite (see Table 6.4.IV). The fluctuation between these two trends reflects the type of Saib's retail customers segment. Most of Saib's retail customers are private banking customers that use Saib as their investment agent rather than banking agent. Therefore, they use ALLOBank and Internet banking channels to follow-up on the progress of their investment portfolios, a service that is not available through Saib's ATMs. Although Saib has launch in December, 2005 AswaqNet, Saib's e-brokerage service, the growing rate of ALLOBank and Internet banking usage reflects the focus of Saib's corporate strategy in targeting private banking customers (see Dimension I-Ii).

Year		1999	2000	2001	2002	2003
Withdrawal to total transactions (%)	Saib	61	54	65	58	91
	Sector	61	68	59	60	53
Active e-cards (%)	Saib	61	67	73	65	65
	Sector	74	77	72	80	80

Table 6.4.IV Saib ATMs statistics during 1999-2003 (BTC 2004)

The promotional strategies and activities used recently by Saib helped to promote e-banking products and services to customers. Marketing e-banking to customers depends mainly on using Saib's internal resources. An example of such strategies is the co-ordination with the Retail Marketing Department to conduct a one-to-one telephone or personnel contact with customers. The aim was to convince customers to use e-banking products and services (Saib survey 2003). The main factor for this success is the adequate use of personnel relationship; "This culture adds huge value to the bank in a society where personal relationships are so important," (BME 2004: 14).

Although the business and constituency-building aspects are going well in the market, the competition is not that simple. Saib is facing competition mainly from AlRajhi and AlAhli, especially in the service of bill payments. An interesting issue here is that AlAhli is considered one of Saib's competitors although it owns 8% of Saib. This indicates an alignment challenge with the intra-organisational governance of the "diamond of alignment" (Molina 1995) (see Alignment 1-1i). Saib is tackling such completion through "continuous revision of plans, products, technology, and customer needs to ensure modification of business plans and procedures," (Saib survey 2003).

6.4.5 Alignment (3-3i) - Nature of target problem

BIT draw four main objectives from Saib's e-banking products and services (see Alignment 2-2i). Although such objectives were well defined from the beginning, they evolved in response to the change in Saib's corporate policy. The Head of E-Commerce clarifies how the objectives have evolved:

"Our e-banking strategy has been modified to align with the change in the over all strategy of the bank. We were mainly a corporate bank until the mid-1990s. After that the bank entered to the retails banking market to make a present. Such change in business force us to modify our e-banking strategy to meet the requirements of the new clients segment, retail. Therefore, we expanded our ATMs and POS terminals networks to capture some shares from the retail banking market."

Table VIII lists Saib's major milestones on the road to modern e-banking products and services. Saib's approach in developing such an e-banking package was through either following the steps and examples of other banks, such as the implementation of Equation by JPMorgan, or taking a pioneering step with little existing precedent, such as the cross-selling channel of Amex cards (see Alignment 4-4i). The initial estimated cost of development and implementation of e-banking was approximately SAR 5 m and the initial estimated time of development and implementation was approximately 3 years commencing 1999.

Launch Date	Product/Service	Description
May 2001	ALLOBank	Telephone banking
June 2002	Saib Internet	Internet banking, retail
August 2003	e-bill payments	Bill payments via ATM
April 2004	Saib Internet	Internet banking, corporate
December 2004	Saib SADAD	Checks payment & presentment service
December 2005	AswaqNet	Internet local brokerage

Table 6.4.V Saib major e-banking milestones (Saib survey 2003; E-Commerce Head; Saib 2006)

The available technical capabilities and human and financial resources of Saib e-banking well matched BIT's objectives (see Dimension I-Ii). However, as mentioned earlier, the actual cost and delivery time exceeded the estimated cost and delivery time by 20% and four months, respectively. The drivers behind the provision of e-banking were the CEO, IT Group and the Marketing Department. The implementation of the bundle required substantial re-engineering of existing activities. This was anticipated in the BIT through hiring technical staff with adequate experience,

providing technical training and sharing the experience with other Saudi banks such as Riyadh and AlAhli.

6.4.6 Alignment (4-4i) - Interacting technologies/constituencies

The migration of the Saib core banking system from MYDES, the former core banking system of JPMorgan, to Equation in 1999 helped Saib to eliminate many integration challenges and enhanced the performance of many divisions and groups. "From this point, the bank has a technical infrastructure that can build on...Nearly everything is being digital line," (IT Group Manager).

The main characteristic of the technological system's structure is to cluster transaction processing in accordance with the beneficiary division or department (e.g., TI of the Credit Division). This clustering enhances the performance of processing and fully optimises Equation and its related hardware and networking components (e.g., IBM-AS400 i-Series). Accordingly, it implies major cost-performance improvements in relation to the previous system, MYDES, and enables the provision of a completely new service.

The Credit Risk Management System (CRMS) of the Credit Control Group is an intra-organisational example. The CRMS increased the efficiency of the financing decision of "go/no go" and allowed the group to respond to larger amounts of corporate banking customer's orders in a shorter time than that of the late 1990s. Another example is the implementation of both LCS and LETS in 1999. Both applications helped the Credit Group to perform its day-to-day operations in an efficient way. The launch of Sterling and IBNS also helped the Credit Finance Group to increase the overall performance (see Alignment 2-2i).

An inter-organisational example that illustrates the relationship between the characteristics and performance specifications of Saib's technological system is illustrated through the case of the Internet banking technological sub-system (see Figure 6.4.III). The major performance specification of the system is the ability to support a customer-base of up to 15,000 Internet banking customers with sub-second response times. Although such performance specification does not imply major cost-performance improvement as the Internet banking service was not available on MYDES, it does enable the provision of a completely new service. Customers now can manage their different accounts with Saib, Asal, and Solc through a single virtual channel.

In general, the implementation of BIT implied many changes from both skills/training and adoption. From the skills and training aspect, the system required (1) skilled resources in the technologies and presentation standards for end-users, (2) core systems to be adapted to a non-stop operation, (3) operational staff to understand the nature of straight-through processing, and (4) legal staff to understand technology-related customer agreements. From the adaptation aspect, the system heightened awareness of straight-through-processing, legal agreements and customer visibility of core

operations. It also increases the vigilance and skills in IT security aspects as well as the awareness of customers' needs across remote channels (Saib survey 2003).

6.4.7 Summary

In summary, Saib e-banking constituency-building process has developed since the implementation of BIT. Accompanied efforts from both intra- and inter-organisational levels held to shape the characteristics of the present e-banking constituency.

6.5 Conclusion

This chapter investigated the emergence and evolution of e-banking at Saib. It provided a brief overview of Saib and some of the key events shaping its developments. It then looked at the particular development of e-banking through the conceptual lens of the "diamond of alignment" (Molina 1995). The results indicate that Saib's e-banking constituency-building process has developed since the late 1990s with combined efforts at both intra- and inter-organisational levels which have shaped the characteristics of the present e-banking constituency.

Chapter 7: Saudi Hollandi Bank

7.1 Introduction

This chapter investigates the emergence and evolution of e-banking at Hollandi⁴⁸. It provides a brief overview of Samba and some of the key events shaping its developments in almost 75 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 7.1.I provides information related to interviews conducted at Hollandi⁴⁹.

Interviewee	Date
e-Banking Head	December 2003
Head of Corporate Banking Group	December 2003
Head of Technology Services Department (TSD)	December 2003
e-Banking Head	January 2006

Table 7.1.I Interviews conducted at Hollandi

7.2 Brief overview

Hollandi, the first bank in Saudi Arabia, was founded in 1926 as the Netherlands Trading Society (NTS), and was originally established with one office in Jeddah to serve the pilgrims from Indonesia. For some time, as the only operating bank in Saudi Arabia, Hollandi served as the Saudi Arabian's Central Bank, maintaining the gold stock of the country and processing the first oil-related transactions. In 1964, Hollandi became a member of one of ABN AMRO.

⁴⁸ The first initial version of Hollandi's case study can be found at: Al-Jadeed, M. & Molina, A. 2005e. Strategic networks to create e-banking value: The case of a Saudi-European joint venture bank. In Proceedings of the 5th IBIMA Conference on the Internet and information technology in modern organisations. Cairo: Egypt. 13-15 December. 362-383. The second initial version of Hollandi's case study can be found at: Al-Jadeed, M. & Molina, A. 2006b. Strategic networks to create e-banking value: The case of the Saudi Hollandi Bank. In Soliman, K. S. 2006. Advancing @ the speed of technology: e-Business strategies for modern corporations. IBIMA Press: New York. Forthcoming. Fall 2006. Electronic copies from the papers are attached as a part of Appendix III with permissions from both the publisher, International Business Information Management Association (IBIMA), and the co-author, Professor Alfonso Molina.

⁴⁹ I wish to express my deep thanks to Hollandi's interviewees for their positive and open attitude to the research questions. Also, I wish to thank the Hollandi's Corporate Banking Group for administering the survey, and all other groups and divisions who responded to the survey.

Twelve years down the road, ABN AMRO was influenced like other banks in Saudi Arabia by the decision of banks' Saudisation⁵⁰. In 1976, Hollandi was formed by taking over the three branches of ABN AMRO in Saudi Arabia and started operations on 1 August 1977. Hollandi's share capital was increased from SAR 210 m to SAR 420 m in 1994, to SAR 630 m in 2000, to SAR 945 m in 2002, to SAR 1,260 m in 2004, and finally to SAR 2,205 in 2006. ABN AMRO holds 40% of Hollandi's share capital while Saudi nationals own the remaining 60%.

Since inception, Hollandi adopted a cautious branch expansion policy, with the main emphasis being on streamlining the organisational structure and back-office computerisation. Despite a substantial rise in treasury activities in the initial years of the 1980s, the principal accent of Hollandi's activities remained within the domestic sector with an eye on the international capital market. The economic slow-down in the mid-1980s had a negative effect on the profit position of Hollandi in the form of substantial loan loss provisions. The cost of branch expansion and automation also had a dampening effect on Hollandi's net income figures.

Hollandi initiated steps to streamline operations and rationalise administrative expenses, mainly in the form of reduced staff expenses to meet the situation indicated above. However, it continued its emphasis on technological upgrading in order to attain its aim of providing top-quality, fully automated and reliable services to its customers. This has had a positive effect in boosting the operating income of Hollandi. On the other hand, Hollandi has been rather slow to introduce new products and services in order to capture new business opportunities. Moreover, too much emphasis on an organisational control mechanism since Hollandi's formation may have adversely affected its innovative instinct. Its pre-occupation with the problem loans and advances portfolio since the mid-1980s finally resulted in innovation being relegated to the back seat in the management's list of priorities.

At the beginning of the 1990s a new BODs took over. The board upon a complete reorganisation of the management structure, revamped policies and procedures, and initiated a re-look into the future needs for information technology. It intended to project a new image of Hollandi with a new name, logo, and nature. Table 7.2.I provides Hollandi's 5-year market share position commencing 1988.

%	For years ended December 31			
	1988	1993	1998	2003
Branches	3	3	3	3
Total assets	4	5	6	5
Share capital	7	2	3	4
Net income	3	4	4	5

⁵⁰ The term Saudisation means localisation. In 1976, the Saudi government promoted a policy of converting foreign banks' branches into publicly traded companies with the participation of Saudi nationals (SAMA 1999).

Table 7.2.I Hollandi market share positions (%), 5-year periods (Al-Duhkeil 1995; Tadawul 2006)

7.3 Some key events

By 2003, Hollandi had evolved into a sustainable development organisation of ABN AMRO. This was established in 2004 with a shared mission to incorporate sustainable development into the working environment and business processes. Hollandi (2005: 12) highlights the aim of the new organisation:

“To provide long-term value for our shareholders, clients, and employees and contribute to society by protecting, sustaining, and enhancing human, natural, and financial capital for the future... The pillars of our strategy for growth have generated energy and enthusiasm throughout the organisation that are underpinning a culture change that is translating into consistently improved results.”

The sustainable development organisation required Hollandi to adopt the following agenda:

- ☐ Raise staff awareness and build expertise related to sustainability.
- ☐ Integrate sustainable development into the business processes through policy development and implementation.
- ☐ Develop products that address environmental, social, and ethical issues.
- ☐ Encourage and promote the concept of sustainable development with external stakeholders.

Hollandi (2005) argues that sustainable development will have an impact on all areas of Hollandi “as awareness is raised and employees and stakeholders believe in, and commit to, the idea of preparing planet Earth for the next generation,” (12).

Currently, Hollandi has about 1,219 employees divided amongst five main groups: Investment, Corporate Banking, Consumer Banking and Operations & Treasury. It operates 39 branches throughout Saudi Arabia dedicated to serve about 130,000 and 1,250 retail and corporate customers, respectively. It also operates about 135 ATMs and 2,660 POS terminals. Figure 7.3.I portrays the organisational structure of Hollandi.

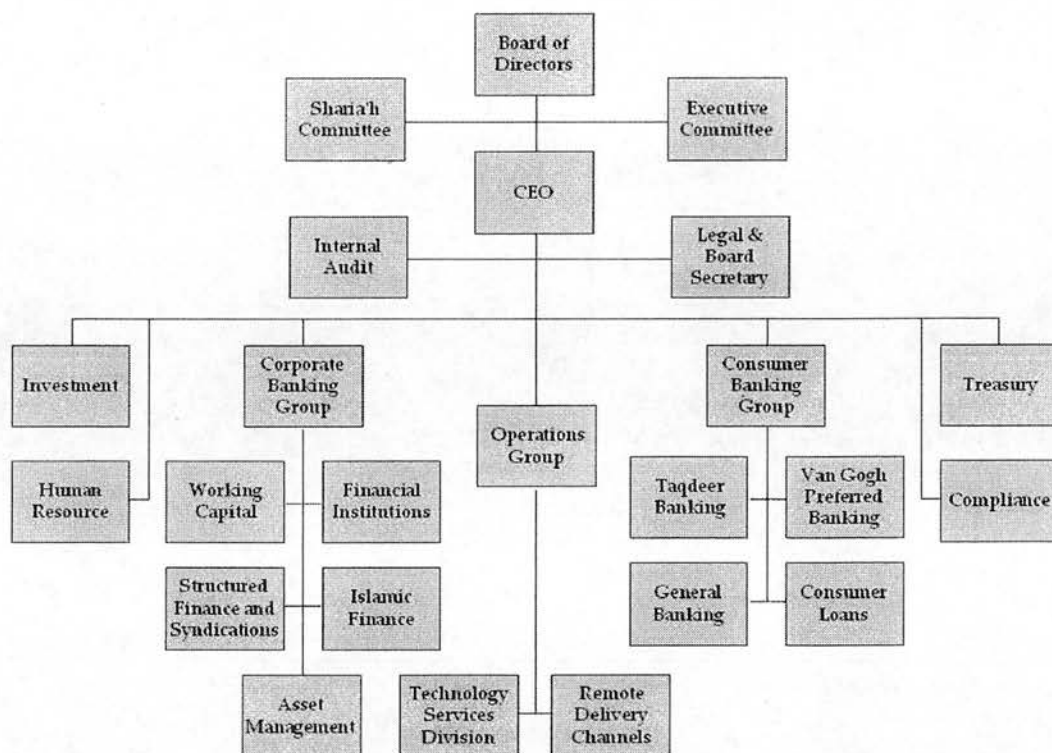


Figure 7.3.I Hollandi's organisational chart (Hollandi survey 2003; Hollandi 2005)

The future, however, according to Al-Dukheil (1995), depends on Hollandi's ability to encourage innovation and to introduce new products and services that meet the changing needs and expectation of the customers. The question now is what are the implications of these key events, including the sustainable development program on the emergence and evolution of Hollandi's e-banking products and services? The following section aims to answer the question.

7.4 The development of the Hollandi e-banking constituency

This section discusses the evolution of Hollandi e-banking constituency by applying the conceptual lens of the "diamond of alignment" (Molina 1995). The diamond selected for the analysis is a two-layered intra- and inter-organisational diamond, given that important features of the Hollandi's e-banking constituency-building process are the result of intra- and inter-organisational interactions between Hollandi and other organisations.

7.4.1 (I-II) Constituents' perceptions, goals, actions and resources

E-banking commands modest economic and strategic powers inside Hollandi. Hollandi's executives are aware of the modest role played by e-banking in the emergence and evolution of Hollandi:

"At [Hollandi], I do not think there was a long-term ICT policy or strategy at the time of first e-banking development. Our aim was to push the initiative to the market as soon as possible without having a well-defined policy. Later, the policy evolved while we were learning from e-banking. Moreover, we learned in this

matter from our partner, ABN AMRO, on how to build a long-term ICT policy and strategy,” (Head of Corporate Banking Group).

In an attempt to modify the role of e-banking, Hollandi developed at the beginning of the millennium a new IT strategy, IT Strategy Road Map, to fulfil the technological needs of Hollandi’s long-term objectives. The roadmap became one of the main roles of the Technology Steering Committee (TSC), an executive committee that consists of all senior managers in addition to the CEO. Hollandi’s executives are proud of developing such strategy:

“We have an IT strategy road map which was built a couple of years ago and the bank is moving to implementing it. This map is evergreen and very [flexible]. We have also a Technology Steering Committee that governs the IT initiatives, IT expenditures, and IT strategy... The idea behind TSC is to align the Technology Services Division with the rest of the bank” (Head of Technology Services).

One of the consequences of the IT strategy roadmap was the formation of the e-Banking Department in 2001 as a new organisational entity under the Corporate Banking Group. The purpose of the department was to develop and enhance the business aspects of e-banking products and services. The department started operations with about 5 employees and an initial annual budget of two millions Saudi Riyals. The focus during the first two year of inception was on the development of the ICT infrastructure.

“We did not spend too much on e-banking development. What we did was only developing our infrastructure and launching Internet banking for both retails and corporate clients. What we spent was only about SAR 5,000,000 only the development and infrastructure. Our approach was to have a very focused and low cost e-banking products and services,” (Head of Corporate Banking Group).

The emergence and evolution of e-banking products and services are usually based on Hollandi’s long-term ICT policy and strategy that are defined by the TSC. Although the task of defining such policy and strategy is a top-down approach, the task of initiating an e-banking idea uses the reverse approach. The e-Banking Head highlights the mechanism for implementing the long-term ICT’s policy and strategy:

“Projects are first initiated at the e-Banking Department. Then they are sent to the TSC for strategic assessment...The committee studies the strategic issues of an initiative and approve or disapprove the initiative for assessment. If the project is approved for assessment by the committee, the initiative becomes a project. Then the e-Banking Department develops the detailed feasibility study for the project and returns it back to the committee for implementation approval. If the project is approved for implementation by the committee, the committee assigns the resources and allocates the budget and the e-Banking Department starts the project.”

Table 7.4.I provides ICT related information about Hollandi main departments as of end 2002. Although Treasury commands the largest annual net profit, ICT’s role and position are much strategic position at both the Consumer and Corporate Banking Groups.

Group	Consumer Banking	Corporate Banking	Investment	Treasury
Purpose	To provide high quality and value added integrated financial solutions to retail customers	To provide banking services to corporate customers	To develop and sell investment products	To covers liquidity needs and service customers in respect of all treasury products
Workforce (%)	39	7	3	2
Annual net profit (approx %)	15	10	13	33
Command strategic & economic power	Yes.	Yes.	Yes.	Yes.
ICT's applications used	Word-processing, e-Mail & Other	Word-processing & e-Mail	e-Mail	Word-processing, Reuters, Bloomberg, Bridge, Trema, Bankmaster Fenic, Ms Office & Fax
Interaction with e-Banking Department	Yes.	Yes.	Yes.	Yes.
Since	2001	2001	2003	2002
Area/s of interaction	Strategy and implementation	Strategy and implementation	Mutual Funds	Market information
Way/s of interaction	Business designs and processes	Business designs and processes	Shares information displayed over the Internet	Provision of reports and rates
Relationship with e-Banking Department	Yes.	Yes.	Yes.	Yes.
Rate of relationship	Very Strong Relationship.	NA	Normal Relationship.	Normal Relationship.
Areas of conflict	No.	No.	No.	No.

Table 7.4.I ICT related information for Hollandi main departments as of the end 2002 (Hollandi survey 2003)

The year 2004 was a challenging year for the e-Banking Department with the introduction of new business propositions and the development of e-banking products and services for both corporate and retail customers. The department has adopted the IT strategy roadmap to gain competitive advantage over other banks. A major change in the department was the shift from the Corporate Banking Group to the Operations Group and the merger with the Call Centre to form Remote Delivery Channels (Hollandi 2005).

The main delivery channels under the new unit include Internet banking, POS terminals, and ATMs. Many initiatives have also been taken to maximise the functionality of these delivery channels. Currently, Hollandi offers many forms of e-banking products and services. The milestone are ATMs in 1991, POS terminals in 1993, telephone banking in 2000, Internet corporate banking (Hollandi

Online Corporate version) in 2001, B2B link with Saudi Aramco in 2001, Internet retail banking (Hollandi Online Retail version) in 2003 and SMS service in 2003.

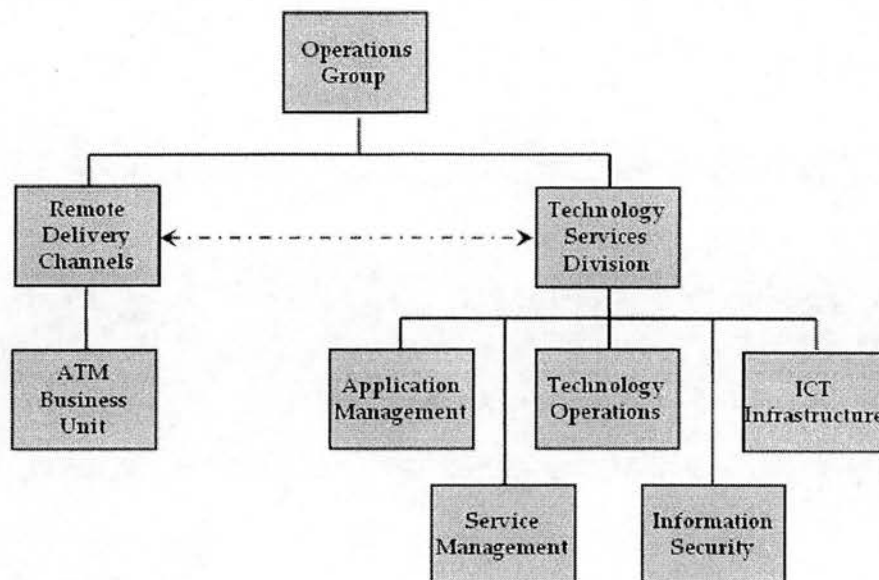
Such products and services exhibit the feature of straight-through processing (STP). Their main performance specifications are speed of processing transactions and security. E-banking products and services also imply a change for customers in relation to the conventional products and services. The change mainly relates to the online interface and navigation and this is user-friendly and intuitive for the customers. One of the reasons behind such achievement was the involvement of some corporate customers during the analysis and piloting stages.

The e-banking products and services have evolved since the time of their launch to provide the feature of STP and offer richer functionality. Meeting customers' demand was the main reason for such evolution. E-banking products and services both complement and compete with conventional banking products and services. Hollandi's e-banking is different from that offered by international banks as it has been developed based on different technical and strategic points of view. On the other hand, comparing Hollandi's e-banking with that of other Saudi and regional banks, it is not different as such banks offer similar products and services. The Hollandi's executives perceive that e-banking is basically automation of the conventional distribution channels:

"I would say that all of the Saudi e-banking products and services are in line with each other. The reason for that is because we are providing functionality to basic banking transactions, which are around account management, cash management, and money transfer, and all other Saudi and regional banks are providing the same services," (Head of TSD).

The technical aspects of e-banking are handled by the Operations Group, responsible for providing and maintaining dependable infrastructural services to enable the business units to serve their customers in the most efficient manner. One of the technical departments under the group is the Technology Services Division (TSD). TSD focuses on the preparation for roll-out of the new core banking system which includes the integration of the new core banking system with other banking applications, establishing hardware/software architecture, data migration and consolidation, upgrade and standardisation of Hollandi's PC infrastructure (Hollandi 2005).

TSD employs about 100 technical employees that are divided among five departments. Figure 7.4.I portrays the organisational structure of TSD and the role of its departments.



- Application Management holds the ICT's strategic issues (e.g., implementation of the IT strategy road map)
- Technology Operations holds the operational aspects (e.g., MIS reports)
- ICT Infrastructure holds the physical ICT environment (e.g. PCs, routers ... etc.)
- Information Security holds the security administrative and operational aspects.
- Service Management holds the cross-functional among other Hollandi's departments.

Figure 7.4.I Operations Group's organisational structure (Head of TSD; Hollandi 2005)

The technical aspects of the e-banking products and services have been completed. However, such products and services are still having some technical problems. One main problem is the assimilation of different e-banking applications to serve e-channels (see Alignment 4-4i). Another main problem is the e-banking operational cost as it is still higher than that of other Saudi banks (e-Banking Head).

The progress of the e-banking constituency inside Hollandi, the banking sector and the market environments, is a mixture of remarkable and modest advances. Inside Hollandi, such aspects are going well. The e-banking products and services are fully accepted and supported by the Corporate Banking Group and the entire Hollandi. They have also built a good reputation among different departments. Free subscription and internal marketing are two examples of the implemented promotional activities of e-banking products and services.

The e-banking products and services have the necessary resources in terms of people, expertise, funding, and facilities. And, the number of employees and departments using e-banking has grown substantially. In the market, e-banking products and services have achieved modest progress, although they have been performing more healthily on the corporate banking side than in retail banking. One of the reasons for the healthy performance on the corporate banking side is the position of the e-Banking Department under the Corporate Banking Group.

"Because the [e-Banking Department] was under the Corporate Banking Group, its main tasks have been the development of e-banking for corporate clients. Therefore, we have very advanced and mature e-banking products for corporate clients. I think

now the e-Banking Department needs to be moved to the Retail Banking Group in order to develop more e-banking products for retail clients... We believe that the development in the future will be from retail clients rather than from corporate clients,” (Head of Corporate Banking).

In fact, Hollandi is proud of the present achievements of e-banking products and services:

“Our corporate Internet banking product Hollandi Online won customer acceptance in 2004 with a marked increase in the number of users subscribing to the service. Further investment was made to enhance functionality thereby ensuring that it is widely accepted as a convenient, quick and secure way of making payments and trade transactions, and receiving information online,” (Hollandi 2005: 17).

In practice, however, the number of customers using Hollandi’s e-banking has grown rather insignificantly. For example, the Internet banking service attracted on a yearly basis an average of 10% and 4% of corporate and retail customers, respectively. Such figures are expected to reach about 40% and 20% of corporate and retail customers, respectively, at the end of 2004 (Head of Corporate Banking). Moreover, Table 7.4.II shows that not only is the Hollandi’s share of ATMs in the sector modest, its yearly growth is insignificant as well.

Year		No. of ATMs	No. of cards issued	No. of transactions on SPAN	
				Total	Withdrawal
1999	No.	86	145,188	102,746	62,541
	sector	4.33	3.12	0.22	0.22%
2000	No.	96	145,340	1,339,348	715,200
	sector	4.32	3.04	1.83	1.44%
2001	No.	111	171,008	1,632,385	837,012
	sector	4.33	3.07	1.56	1.36%
2002	No.	125	181,512	1,823,385	942,056
	sector	4.02	3.23	1.39	1.20%
2003	No.	135	180,754	1,947,454	989,985
	sector	3.89	3.09	1.15	1.11%
5-Year Average		111	164,760	1,369,064	709,359
		4.18	3.11	1.23	1.07

Table 7.4.II Hollandi’s ATMs statistics, 1999-2003 (BTC 2004)

7.4.2 (II-III) Nature and maturity of the technology

One of the main features that characterise Hollandi’s e-banking technological system is that it has been developed internally (i.e. in-house development). The major performance specifications of the system are speed, capacity, and scalability of data processing. In relation to previous systems, such major performance specifications not only imply major cost/performance improvements, but enable the provision of completely new services, such as chip cards.

To cope with the anticipated increase in the volume of transactions that require a high-performance and scalable network design, the TSD had to substitute in 2001 the existing X25 network design with one based on IP. The WAN design is based on the Cisco’s hierarchical model and uses Cisco high-end routers as the network core. It also includes a disaster recovery node.

The LAN design is based on Cisco's collapsed core model and uses core switches, layer-3 capability and edge switches. Inter-virtual LAN routing has been used between switch trunks, and all traffic has been load-balanced. To meet customers' need for high-availability, scalability and redundancy, the design incorporated the concept of full bandwidth and redundancy for the LAN and WAN, respectively.

The e-banking technological system consists of a group of mini-computers built on client/server technology and run a group of both specially and ready-made applications. The entire hardware components of the network architecture consists of about 150 devices and uses Cisco Works 2000 as a network management tool for configuration, inventory and availability. Such network design not only enhances the state of the e-banking constituency's readiness, but also allows the launch of modern e-banking applications as they mostly require an IP platform to operate.

During 2003, the entire technological system had been upgraded to an advanced mature system. This upgrade has enabled the gradual accumulation of many ICT applications as well as the elimination of performance problems due to technical incompatibilities with other interacting systems (see Alignment 4-4i). Table 7.4.III lists some of the new applications implemented as well as the beneficiary departments.

IT Application	Department/user
Asset Securitisation System	Assets Management
B2B Application for Saudi Aramco	Consumer Banking Group
Cisco Works 2000	Technology Services Division
Customer Loyalty Application (AlFareed)	Consumer Banking Group
Delinquent Monitoring System	Consumer Loans Department
Electronic Remittances Application	Corporate Banking Group
e-Salary Payment System (Rawateb)	Financial Affairs
Expenses Accounting System (EAS)	Human Resource
Expert Scorecards Application	Consumer Loans Department
Standing Orders Management System	Consumer Banking Group
Tadawul's On-Line Price Dissemination	Investment Group
TEMENOS GLOBUS	Technology Services Division

Table 7.4.III Some Hollandi's new IT systems and applications (Hollandi survey 2003)

The Head of TSD describes the main types of ongoing ICT projects driving the specification of such applications:

"We have three types of projects. Mandated projects that are those mandated by SAMA, such as Tadawul and SPAN. External mandated projects which includes all of the SWIFT projects. Internal projects which include this year Direct Dept Management, Hollandi Online for consumer, and Hollandi Online for corporate. We also have a main project related to replacing our major core banking system. Currently our core banking system is running on Kendel Span Master and we are changing it to TEMENOS GLOBUS, which is a major project for us and started last year and is expected to be completed by the middle of 2004."

Most of the technologies used in the e-banking technological system are transparent. Full testing, piloting, soft launch, and ethical hacking based on customers' feedback confirm the transparency of the technologies. For example, the migration of the network to the IP design in 2001 included usability testing and piloting during the implementation process.

The migration was carried out following a four-phase process:

- ☐ Assessment of the existing network resources.
- ☐ Pilot at a single branch to demonstrate the new network designs prior to full-scale migration.
- ☐ Full-scale roll-out across the three zones within Saudi Arabia and the 39-branch network.
- ☐ Monitoring, maintenance and evolution of the new designs.

The specifications of the e-banking technological system evolved in the course of its development as new ideas were generated and gaps were identified in the market. This was due to the nature of e-banking and the increasing awareness and demands of customers for high-availability, scalability and redundancy of the service. An example of the system evolution was the launch of smart cards to replace the traditional magnetic stripe cards to maximise the functionality of ATMs and POS terminals (see Alignment 4-4i).

The technical specification of the e-banking technological system shows that not only does it use standard mature technologies; it is also characterised by a good degree of innovativeness. Although the system has not developed a new proprietary technology, it is technically very demanding, especially in terms of maintaining security and 24X7 availability. The risk of failing to deliver in terms of anticipated performance, cost and time translates into downtime, loss of transactions' income and lack of internal support and resources. Regular training by technology vendors and appropriate recruitment of technical people are in place to avoid such risks.

7.4.3 Alignment (1-1i) – Organisational governance

The Head of Corporate Banking Group describes how the process of decision-making is highly influenced by the culture of ABN AMRO:

“Our decision making process is based on arguments. Our bank is affected by its partner's culture. In the Dutch culture, we do not care about whom that person is, rather we care about arguments provided by that person. During our decision making process we are always looking for arguments surrounding any decision and the bottom line impact of the decision, are we making money? Or are we saving money?”

A culture of participation characterises the decision-making process and influences the evolution of e-banking. In addition to the TSC that governs the IT Strategy Road Map and aligns TSD with the rest

of the bank, the e-Channel Committee defines e-banking products and services across all of the e-channels (e.g., Internet banking) (Head of TSD). The third entity is the Sharia'h Committee, a new entity formed in 2005 to ensure that all Islamic banking products and services provided by Hollandi are compatible with Islamic banking. Another entity is the Bank Steering Committee (BSC), an executive committee consisting of all senior managers, CEO, and representative from the BODs (E-Banking Head).

All these entities come under the direct supervision of the CEO. Since e-banking decisions are made by many organisational entities, the process has led to a fragmented chain of authorities that negatively influences the achievement and implementation of e-banking products and services. The e-Banking Head highlights the formal mechanism for e-banking decisions and suggests the need for a change in the governance of Hollandi to facilitate the success of e-banking products and services:

“TSC must approve all decisions that require budget less than SAR 100,000 for resources assignment and budget allocation. Other projects with higher budget than SAR 100,000 must be approved by BSC... We need more authority and control at our area. Because all initiatives must to be approved by TSC, a delay occurs during the process of development. Therefore, we need to have the authority to approve a certain amount of projects without the need to go to TSC for approval. For example offering an SMS service to clients is becoming a trend in the industry. We would like to offer such service to our clients but because TSC did not see feasibility in the service, we could not offer such service.”

Such a fragmented chain of authority has also resulted in a cultural difference in the vision and perception of the role of e-banking and communication among e-banking entities (e.g., TSC, e-Channel Committee). The Head of Corporate Banking Group highlights an issue raised during the formation of the e-Banking Department in 2001:

“When we started our e-banking development there was a big fight between us, the Corporate Banking Group, and TSD on which [group] will handle the development and operations of e-banking channels. However, because of the top management’s re-arrangement of departments, we became the developer of e-banking through our e-banking unit and TSD became the operator of our e-banking. Currently we are working on a close relationship following the fighting phase at the beginning of e-banking development.”

Inter-organisationally, Hollandi’s e-banking constituency has to align with the regulatory standards of SAMA. The launch of smart cards, as the first Saudi bank to respond to SPAN-2, shows that the constituency is able to adapt to technical inter-changes (see Alignment 4-4i). However, the lack of legal framework governing e-banking in particular and e-business in general is a prime issue having a direct influence on the achievements and implementation of e-banking products and services. According to the e-Banking Head:

“The e-banking business still has no policy behind it in order to secure transactions for both the banks and the clients. For example, if there is a dispute claim for e-banking transactions from the client, and his bank rejected the claim; the client has no legal authority to sue the bank. Therefore, I think for the growth and success of

e-banking in Saudi Arabia, a legal framework that secures the right of the participating parties is critically needed.”

In addition to the legal framework, the Saudi Arabian society has a cash-based culture. It needs more time to become a credit-based culture that facilitates the growth and success of e-banking. The national ICT infrastructure is another change required to facilitate the growth and success of e-banking as the e-banking penetration rate is still low (Head of Corporate Banking Group). In general, e-banking products and services are playing the role of catalysers of change in the Saudi banking sector. According to the Head of TSD:

“E-banking in a way is changing the way of doing banking business, and the more people can do banking transactions electronically, the higher the chance that the banking concept will change. This is mainly related to the main concept of e-banking which is doing e-banking transactions 24x7 any day at any place.”

7.4.4 Alignment (2-2i) - Target constituents’ perceptions and pursuits

Hollandi does not attempt to be an e-banking leader. Nor it does it attempt to be the best practitioner (e-Banking Head). In this respect, the assessment of progress of the e-banking constituency-building process suggests a mixture of remarkable and modest advances. For instance, the Hollandi’s e-banking constituency still wishes to bring more senior managers behind its products and services (see Alignment 1-1i). Although e-banking products and services are aligned with the interests of senior managers, such as career progression, the perceptions of senior managers are still more favourable towards activities other than e-banking, such as private banking. In order to enrol more senior managers behind the e-banking constituency, the e-Banking Department is trying to align the interest of senior managers with the benefits of e-banking through innovative private e-banking products and services.

The e-banking constituency is facing important opposition from departments, in particular TSD. The opposition reflects the fact that there are other projects with similar aims to e-banking competing for the resources of Hollandi. An example of such opposition was the formation of the e-Banking Department under the Corporate Banking Group (see Alignment 1-1i). The opposition to e-banking is unlikely to lead to the cancellation or failure of e-banking products and services. However, it forms a barrier as the Corporate Banking Group has to prove to TSC the economic feasibility of the initiative, a reasonable strategy used by the group to tackle the opposition. Although the business and constituency-building aspects are making progress inside Hollandi, despite the opposition and governance complexities, they are having more limited results in the market. The following is an example of a promotional strategy implemented by Hollandi to promote e-banking:

“WCD Trade Sales and Advisory [ABN AMRO], in coordination with our Trade Services Units, delivered several workshops and presentations to our commercial customers, successfully leading them to use Hollandi trade facilities. WCD is aligned and enjoyed greater rapport with the ABN AMRO corporate line of

business, which resulted in cementing our relationships and added value to our present services to our clients,” (Hollandi 2005: 17).

In fact, e-banking has been partially promoted and not well resourced in the market, suggesting a partial degree of e-banking’s acceptance. There are two reasons behind such degree of acceptance. The first reason is the modest promotional strategies and activities (e.g., mail campaigns). The second reason is the fact that Hollandi offers no distinctive financial product or service over e-channels. This provides no reason for potential customers to support e-banking.

In an attempt to enhance the acceptance rate, Hollandi is trying to reposition its e-banking service in the market via some initiatives. For example, a new ATM Business Unit was established during 2004 with the objective of increasing revenue, reducing operating costs, and improving market image, service excellence, and customer satisfaction. The new unit’s strategy is to expand market share by positioning ATMs in strategic locations, closing loss-making ATMs, increasing ATMs network availability, and providing better service and support to branches and all ATMs customers (Hollandi 2005).

In addition to ATMs, POS terminals are also repositioned through both increasing utilisation of terminals and implementing service level standards for problem resolution and financial settlement. This resulted in a reduction in the number of incomplete transactions and an increase in both the volume of business and revenue from POS terminals. For example, the acceptance rate of corporate banking POS terminals grew to 16% as of 2004. Establishing the unit after almost 14 years from the first launch of ATMs and repositioning POS terminals are two examples of initiatives that aim to enhance the e-banking’s acceptance rate.

The modest progress of the business and constituency-building aspects of e-banking at the market goes hand in hand with the competitive position of Hollandi within the banking sector. Hollandi’s competitors provide similar e-banking products and services to that of Hollandi, in particular corporate e-banking. The only difference is pricing as competitors offer e-banking free of charge. Hollandi tackles this competition through a special sales force and a help desk to facilitate corporate e-banking. Figure 7.4.II compares the daily reach of Hollandi’s website with that of Banque Saudi Fransi (AlFransi) during the period of October 2004 to September 2005. Clearly, the progress of the Hollandi’s website is much lower than that of AlFransi.

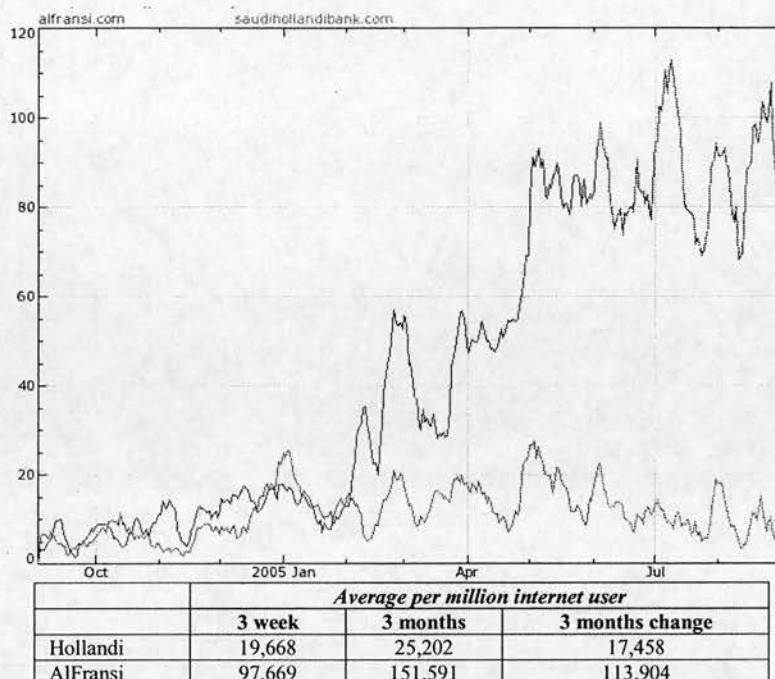


Figure 7.4.II A yearly comparison between the daily reach per million users of Hollandi's website with that of AlFransi as of July 2005 (Alexa 2005)

The Head of Corporate Banking Group highlights the nature of e-banking competition and lists the main competitors:

"For retail e-services, I think we do not have a real competition with other Saudi banks. For corporate e-services, we are facing important competition from some Saudi banks due to the fact that they just recently discovered the business opportunity in the corporate business. We have gained some shares from our competitors' shares and vies versa. Our main competitor is AlFransi, and then Samba, Sabb and AlAhli."

Hollandi assumes that it is winning the competition and identifies two main factors for this success. The first factor was that the development of e-banking has been handled by corporate banking people rather than technical people as is the case with competitors. In another words, Hollandi invested its knowledge and familiarity with the needs of corporate banking customers in developing more richness, in terms of functionality and features, e-banking products and services than that of competitors. The second factor was that Hollandi has gained the knowledge and experience of its partner in the development of e-banking products and services.

The competition among Hollandi and its main competitors is one of formal competition and it does not entirely depend on technology. Although it provides integration, accuracy, less operational errors and straight-through processing (STP), it plays a modest role in the competition strategy. The Head of Corporate Banking Group describes the common role of technology and financial products in creating a competitive advantage:

“Technology does not really matter. What matter is how you sell your products and services? Technology more or less offers the same to every one and what matter is how you deploy the technology to serve your needs. At the bank, we have a central workflow tool with each corporate e-product. In another word, a financial transaction of a corporate client is different from that of a retail client in a way that it has many authorities’ layers when it deals with funds transfer. Therefore, we have incorporated such authority levels and mechanisms at each of our corporate e-products. Therefore, technology helped us to such incorporation, but the main campaign is our way of doing business.”

7.4.5 Alignment (3-3i) - Nature of target problem

The original vision of Hollandi’s e-banking products and services is on course whilst the original objectives have changed over time. The Head of TSD highlights that the evolution of the original objectives was a response to the change in constituents of the e-banking constituency:

“Our e-banking vision was on course whilst our e-banking objectives have changed over time. For the span of two years the business requirements, people, technologies, costs have changed. Consequently, our objectives have changed too in order to meet the new changes.”

The vision of Hollandi’s e-banking was “full-service alternative distribution channel” and the objectives were to improve customer services, to decrease operational costs and to be competitive in the market (Hollandi survey 2003). E-banking started at Hollandi during the first part of the 1990s when it launched ATM in 1991 and POS terminals in 1993. This was followed by the launch of a telephone banking service in the late 1990s. The Internet banking service started in 2001 and 2003 for corporate and retail banking customers, respectively. The main reason behind the launch of such e-banking products and services was competition.

The launch of both ATMs and POS terminals was supported by a well-defined vision and objectives from the beginning as SAMA led the development, while that of the Internet banking service was totally different. The Head of Corporate Banking Group describes the uncertainty surrounding the vision and objectives of the Internet banking service and the evolution of the implementation strategy:

“There was no clear vision behind [Internet banking]. All we want is to have [Internet banking] as of our competitors, a defensive strategy approach. However, [during] the development, our approach has changed to an aggressive strategy approach.... [Moreover, the objectives] were well defined within a small number of people who were in charge of e-banking development, but this was not the case with the whole bank. We started the development with a small team from the Corporate Banking Group and a small team from the e-Banking Department with a strong support from the top management. The vision within these two small teams was to develop e-banking services in order to increase efficiency and reduce the operational costs...Our strategy was not well defined from the beginning, but as we approached the e-banking development it was evolving.”

The strategy to achieve Hollandi’s objectives was to provide customers, both corporate and retails, with other delivery channels and to sell new products through those new channels. The development approach to achieve such strategy was a combination of both: following the steps of ABN AMRO in

e-banking development and taking a pioneering step with little existing precedent. The choice among following the steps of others, taking a pioneering step or both involved many strategic decisions. According to the Head of Corporate Banking Group:

“The development of the application required from us to take three strategic decisions. The first decision was to outsource the development of the application to an IT development firm based in India. The cost/benefit analysis showed that outsourcing would give the bank more chance to focus on the business. The second decision was to include in our offering the trade businesses that are needed by corporate clients. We were the first Saudi bank to include such business line. The third decision was to upgrade our IT infrastructure and apply more sophisticated security systems.”

There were many benefits envisaged and promised from providing e-banking products and services. From intra-departmental point of view, e-banking increased the efficiency of operations and enhanced the accuracy of data via the elimination of data input and conflicts. From the bank point of view, e-banking allowed better rationalisation of resources and improved the efficiency of branches. From an inter-bank point, e-banking enhanced the reputation of Hollandi as is perceived to be embracing the technological revolution.

The development and implementation of e-banking products and services required a reasonable amount of resources and Hollandi's ability to deliver was not always immediately available. It has indeed evolved with the challenges raised by the changing nature-of-the-target-problem. The journey started in 2000 when the Corporate Banking Group initially allocated five people and two years to develop and complete the project. Such people were grouped into a team (i.e. e-Banking Department) and they are considered as the promoters of e-banking. The front-office applications, such as Internet banking, cost the Corporate Banking Group about SAR 5 m of the operating budget. The build-up of the e-banking technological system occupied about 30% of the operating budget of TSD.

The Corporate Banking Group, top management, and SAMA strongly authorised and supported the process. In order to build the required support, the e-Banking Department, the promoter, started the constituency-building journey via using the concept of team-working and an ambition to improve the image of the bank. Encouragement was the initial tactic that the department used to achieve the goal.

The process of developing and implementing e-banking products and services faced some internal challenges. Not only had this process started with a lack of technical capabilities, but it was also demanding changes in the business requirements. According to the Head of Corporate Banking Group:

“The normal way for developing e-banking services is to identify the business requirements then allow the IT [department] to develop the services. However, during the development of our e-banking services we faced the challenge of changing business requirements after each phase. Such changes created a delay in delivering the final products. Although the change in our business requirements is one of the reasons for our late following in providing e-banking services to the

market, we think that such changes were necessary to deliver services that can meet clients' need."

Other internal challenges faced by the process of developing and implementing e-banking products and services were related to skills and re-training of employees and re-engineering of existing activities. From the point of view of skills and re-training of employees, some employees were worried about their jobs being automated with consequent decrease of the need for their presence. This case emerged after the re-allocation of some employees to different tasks or departments. From the point of view of re-engineering existing activities, introducing e-banking required the modification of some internal audit control. The Head of TSD describes such challenge:

"The main challenge was related to what are the products and services you would like to offer and how you want to offer them provided that you set all sort of controls. This means how we will apply financial controls and regulations to our e-banking products and services and at the same time provide seamless and smooth integration services to our clients."

The process of developing and implementing e-banking products and services also faced external challenges, in particular convincing customers to migrate to e-channels. The e-Banking Head describes the challenge:

"Our clients used to perform their banking needs manually through the conventional channels. Now the case has modified this to allow clients to perform their banking transactions automatically through e-channels. Some clients prefer not to change their ways of doing banking and prefer to stay with the conventional channels. We faced the challenge of convincing them to start to use the e-channels. The challenge still exists with corporate clients, which face difficulties trusting the e-channels."

In short, the e-banking constituency-building process at Hollandi has had a changing "nature-of-the-target-problem" and this has led to substantial internal and external challenges. Such challenges were not anticipated in the phases of design and strategy of e-banking and the ability to deliver has been to an important extent, created along the way. One of the main implications of this approach was the delay in bringing the products and services to the market.

7.4.6 Alignment (4-4i) - Interacting technologies/constituencies

The Hollandi's e-banking technological system establishes many types of intra- and inter-organisational relations with other technological systems. From an intra-organisational point of view, the e-banking technological system was blending during the period of 2001-2003 with the legacy systems previously in place. The relationship was not technically well-established as the e-banking system sacrificed performance. An example of the low performance is the case of launching the Internet banking service in 2001. The e-Banking Department Head clarifies that the modest readiness of the legacy systems at that time influenced the launch of the retail internet banking (Hollandi Retail Online):

“In May 2001 we completed the development of our Internet banking for retail clients. However, because our infrastructure at that time could not handle the new Internet banking application, we decided not to launch the service to clients. If we had launched the service at that time, we would have been the second Saudi bank to launch such service.”

Not only had the interaction between the e-banking technological system and other intra-organisational systems sacrificed performance, but it also limited the functionality of the existing e-banking products and services. An example was the first two years of the Internet corporate banking service (Hollandi Corporate Online). According to the e-Banking Head:

“Because we lacked the e-experience we launched the service off-line meaning that the web-site received orders for transactions from clients and then forward them to the Corporate Banking Group for manual processing. This was the case until [November 2003] when we replaced our manual web site for corporate clients with a transactional one that handles all transactions through straight-through processing without any human intervention.”

As a result, the number of customers using e-banking has grown insignificantly. For example, as we saw in Dimension I-Ii, the Internet banking service attracted on a yearly basis an average of 10% and 4% of corporate and retail customers, respectively, although such figures were expected to improve. During 2003, the entire technological system has been upgraded to an advanced mature system. The upgrade improved the performance of the e-banking system as it no longer sacrifice performance. The upgrade also allows the gradual provision of many new ICT applications (see Alignment II-Iii).

The existing relationship among the e-banking technological system and other systems that may be in process of development and implementation is producing an integrated technological system. Hollandi's executives are proud of such a relationship that reflects a tradition and culture of innovativeness:

“We do have a tradition and culture of innovativeness because we could integrate our old systems with new technologies, and produce an integrated IT environment without migrating everything to new technologies,” (Head of TSD).

The adoption of the e-banking technological system has incurred many changes. From the point of view of skills and training, the system has required technical people from both the e-Banking Department and TSD to learn new skills and attend training courses. From the point of view of operations, the system has required a 24/7 support and a duplicate version (i.e. a disaster recovery site) in case of emergency.

Hollandi's e-banking technological system establishes not only intra-organisational relations, but inter-organisational relations as occurs with SAMA's inter-banking payment systems. The launch of smart cards to replace the traditional magnetic stripe cards to maximise the functionality of ATMs and POS terminals is an example. Although the replacement was one of the consequences of SAMA's

SPAN-2 project⁵¹, it shows that Hollandi's technology is frequently aligned with other technologies. Hollandi's CEO highlights the objectives behind the launch of smart cards:

"Chip cards mark the beginning of a new revolution in the world of electronic payments and we are delighted to be the first in making it a reality in Saudi Arabia. As a mature market, the Kingdom is quick to embrace the latest in technologies, which makes it increasingly important for us to deliver a sophisticated product to suit modern payment needs. Chip cards have a definite edge over the traditional magnetic stripe, most important of all being in combating any potential fraud. The microprocessor embedded in the card, carries only encrypted data therefore making it almost impossible to decipher when in wrong hands," (AME Info 2003).

Such inter-organisational relations face two main challenges related to the security of e-banking transactions and the national ICT infrastructure, especially the standards for B2B business. The Head of the Corporate Banking Group criticises the role of SAMA in facing such challenges:

"Although SAMA is working in developing the security infrastructure for e-banking through the development of an e-trust centre that deploys PKI as its standard, such technology seems an old fashion one that cannot meet the new requirements of e-banking. Technologies and the market are developing and the PKI is not the only standard to have a secure e-banking environment."

The challenges of security and ICT infrastructure imply changes in the e-banking technological system, in particular regarding the updating of its applications with tools and standards to meet the regulatory standards required by SAMA. In 2004, for example, TSD upgraded part of the ICT infrastructure to support the business expansion in branch, ATM, and shares trading lounge networks. The upgrade included, but was not limited to installing new structured cabling and voice recording systems in the major branches. In 2004, TSD also implemented a key critical and mandated business initiative related to making telephone banking capable of offering more online financial services (Hollandi 2005).

7.4.7 Summary

The assessment of the e-banking constituency-building process suggests that Hollandi has a great deal to do to achieve a strong alignment across all the dimensions of the "diamond of alignment" (Molina 1995). Although efforts have been made in all dimensions of the "diamond of alignment" (Molina 1995), the Hollandi's e-banking constituency-building process has achieved limited development. Much of the progress is credited to Dimension 4 of the "diamond of alignment" (Molina 1995), interacting technologies/constituencies.

⁵¹ SPAN-2 is the new version of SPAN that built on the use of smart cards instead of magnetic stripe cards. The project launched during the first quarter of 2005 and requires all Saudi banks to update their ATMs and POS terminals to accept smart cards.

7.5 Conclusion

The chapter investigated the emergence and evolution of e-banking at Hollandi. It provided a brief overview of Hollandi and some of the key events shaping its developments in almost 75 years of existence. It then looked at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). Results indicate that Hollandi’s e-banking constituency-building process has developed in limited fashion, although some efforts have happened at all dimensions of the “diamond of alignment” (Molina 1995). More specifically, while a great deal of progress has occurred at Dimension 4, Dimensions 1, 2 and 3 have had only a modest evolution. Hollandi has followed a mix of strategies to furnish the needs of its customers. A reassessment of its mix of strategies in the context of the challenges facing Hollandi’s e-banking constituency building process is highly recommended. In this respect, modifying the bases of such a strategic set, to be on the Saudi culture rather than that of the Dutch culture, is also recommended.

Chapter 8: National Commercial Bank

8.1 Introduction

This chapter investigates the emergence and evolution of e-banking at AlAhli⁵². It provides a brief overview of AlAhli and some of the key events shaping its developments in almost 60 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 8.1.I provides information related to interviews conducted at AlAhli⁵³.

Interviewee	Date
e-Banking Head	January 2004
CIO	January 2004
Head of Remote Delivery Channels	January 2004
e-Banking Head	January 2006

Table 8.1.I Interviews conducted at AlAhli

8.2 Brief overview

AlAhli was the first bank established in Saudi Arabia with a paid capital of SAR 30.23 m. It was established as a joint liability partnership company on 13 May 1950 to carry out banking operations both within and outside Saudi Arabia. AlAhli was constituted as a general partnership from its founding in 1950 until 11 July 1977, when it was reconstituted as a joint-stock company as the first step towards an initial public offering.

During the first half of the 1980s, AlAhli pursued a massive branch expansion as well as the adoption of technology in some of its front-office operations. With the slow recovery of the Saudi economy towards the end of the 1980s, AlAhli introduced certain key changes in management and developed new strategies and procedures through increasing automation and offering new products and services. However, it was unable to counteract the decline in operational revenues and other managerial problems.

⁵² An initial version of AlAhli's case study has been accepted for presentation at Africa Telecommunication and ICT Conference, Nairobi: Kenya, 17-21 May 2006. It also has been accepted for presentation and publication at International Conference on Business and Information, Singapore, 12-14 July 2006. An electronic copy from the paper is attached as a part of Appendix III with permission from the co-author, Professor Alfonso Molina.

⁵³ I wish to express my deep thanks to AlAhli's interviewees for their positive and open attitude to the research questions. Also, I wish to thank AlAhli's Finance & Accounting Division for administering the survey, and all other groups and divisions who responded to the survey.

In order to meet such challenges, during the 1990s, AlAhli sought to implement radical changes in terms of ownership. In 1992, AlAhli carried out a major restructuring exercise through the addition of SAR 5,937 m to its capital to reach SAR 6,000 m, the largest capital both in Saudi Arabia and in the Middle East. This was followed in 1997 by the changes that transformed AlAhli into a joint-stock company as the first step towards initial public offering.

In 1999, PIF acquired a 79.3% holding in AlAhli, and subsequently sold 10% to GOSI. Currently, the shareholders are PIF (69.3%), GOSI (10.0%) and 24 private investors (20.7%). Moreover, AlAhli decided to change gradually its focus from conventional to Islamic banking before floating its shares for public subscription. This has not only moved AlAhli from conventional to Islamic banking, but also positioned it in direct competition with AlRajhi, AlBilad and AlJazira.

The 1990s witnessed crucial changes in the management as well. Following the change in ownership in 1999, a BODs was elected, a new Managing Director was appointed, a large number of executives were hired, and a modified organisational structure was implemented. Such managerial changes not only reduced the operational revenues and other managerial challenges, but also marked for the first time in history of AlAhli a clear separation between ownership and management. This also was the beginning of a quantum improvement in the AlAhli's quality of customer services both in the breadth of its product offering and in its financial performance indicators. Table 8.2.I provides AlAhli's 5-year market share position commencing 1983.

%	For years ended December 31				
	1983	1988	1993	1998	2003
Branches	33	26	22	22	20
Total assets	37	36	23	NA	22
Total liabilities	38	37	23	NA	23
Share capital	2	1	53	43	24
Net income	24	0	11	NA	NA
ATMs	NA	NA	20	22	23
POS terminals	NA	NA	7	20	17
e-Cards issued	NA	NA	18	17	21

Table 8.2.I AlAhli market share positions (%), 5-year periods (Al-Duhkeil 1995; AlAhli 2005)

In June 2005, the BODs appointed a new Managing Director to take the lead for the coming new period. This is due to the fact that AlAhli is on course to offer 30% of its share capital to the public during the first quarter of 2006⁵⁴. The offering is the next step after the transformation of the entire

⁵⁴ As of today, the process of privatising AlAhli has encountered a delay. Accordingly, I published an article, entitled "The feasibility of AlAhli's privatisation?" at Aleqtisadiah Newspaper (Issue No. 4533, Date: 10/03/2006). The article not only inquired about the reasons for the delay, but also looked at the socio-economic implications of privatising commercial banks on the national economy. It also summarised lessons from the evolution of AlAhli since the 1990s. The article is positioned under the umbrella of advancing and disseminating the knowledge and understanding among the public in Saudi Arabia. See Appendix IV.

business focus towards Islamic banking. In a statement after his appointment, the new Managing Director highlights the future direction of AlAhli:

“I will focus on completing a program to transfer all our branches to provide Islamic banking services and introduce new banking services and products.” (Hanware 2005)

This was followed in October 2005 by the announcement of AlAhli’s modified corporate strategy that aims to strengthen AlAhli’s position within the Saudi market. The strategy focuses on three main aspects: merger, Islamic banking dissemination, and Islamic banking innovation. AlAhli also announce the establishment of AlAhli Takaful, an Islamic insurance company, as a subsidiary in the insurance market.

Currently, AlAhli has about 4,200 employees dedicated to serve about one million retail customers and one thousand corporate customers via 246 branches throughout Saudi Arabia, including 78 branches dedicated exclusively to Islamic Banking services. It also operates 792 ATMs, 4,304 POS terminals, the largest dealing room in foreign exchange and money market in the Middle East and a comprehensive array of alternative channels for services delivery, including telephone banking, mobile banking, Internet banking, and local and international online brokerage services. Such channels executed as of 2003 over 70% of customers transactions. Figure 8.2.I portrays the organisational structure of AlAhli.

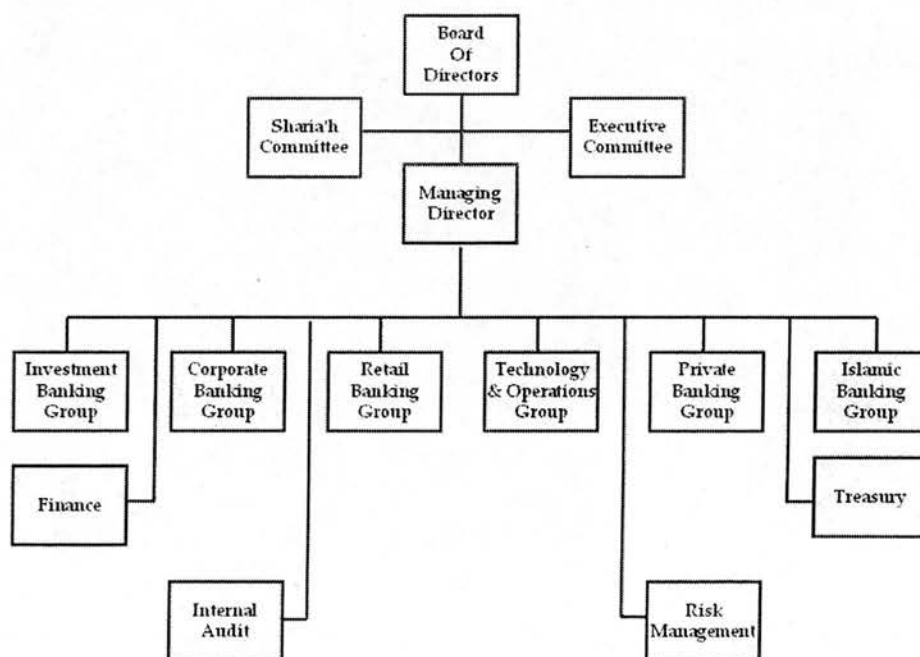


Figure 8.2.I AlAhli’s organisational structure (AlAhli survey 2003; AlAhli 2006)

The new emphasis on innovation has helped AlAhli to achieve a strong competitive position in the e-banking segment. Accordingly, AlAhli has been acknowledged as the best retail bank and best e-

banking service provider in Saudi Arabia. According to AlAhli's Corporate Banking Head (Infosys 2003):

"We have embarked on an exciting and challenging journey in which we reinvented ourselves into a highly customer focused, and agile bank. Our sensitivity to the needs and requirements of our customers allow us to deliver unique, personalised, and highly effective solutions and services that help them achieve their objectives. The bank has invested significantly in technology as a tool to transform its business."

Having briefly looked at the story of AlAhli's development, the next section looks at the implications of the key events on the emergence and evolution of AlAhli e-banking constituency and its products and services.

8.3 The development of AlAhli e-banking constituency

AlAhli's adoption of information and communication technology (ICT) started at the beginning of the 1980s when many back-office operations were automated. A modest ICT literacy within the bank characterised the use of such technology until the end of the 1990s when a new BODs was elected and a new management team was appointed following the change in ownership structure. One of the main technological issues which occurred during that time was the appointment of one of SAMA's executives to lead the technological development at AlAhli.

In 1998, AlAhli appointed the former Banking Technology Head at SAMA as the Vice-President (VP) of the Technology & Operations Group. The new VP played an important role in the development of e-banking technology in Saudi Arabia as he led the development of many of SAMA's inter-bank payment systems during the 1990s, including ACH, SPAN, ESIS, and SARIE as well as initiating Tadawul. The appointment has moved AlAhli to the front line as a provider of innovative e-banking products and services.

Today, the level of ICT's literacy at AlAhli is high compare to other Saudi banks. The ICT's long-term policy and strategy are defined by the BODs, Managing Director, and heads of groups. AlAhli's executives are proud of the culture of innovativeness that characterise AlAhli and highlight the main factors for such behaviour:

"Understanding the business needs and following up with the progress of the most recent technologies to choose the appropriate and suitable ones among them as well as hiring the best resources to design, implement, and manage those technologies," (AlAhli survey 2003).

The Technology & Operations Group handles all aspects related to e-banking. The Technology Development handles the technical aspects of e-banking. The operational and business aspects of e-banking are handled by the Remote Delivery Channels. The Remote Delivery Channels Department was formed in 1999 to provide effective and efficient alternative delivery channels for both financial

and non-financial transactions. It has about 35 employees and an approximate annual budget of SAR 17 m.

The Technology & Operations Group commands strategic power and an economic role as it has developed and launched almost all forms of e-banking products and services, including Interactive Voice Response (IVR) telephone banking, AlAhliOnline, an Internet retail banking system, mobile banking through WAP and SMS technologies. Figure 8.3.I portrays the organisational structure of the Technology & Operations Group.

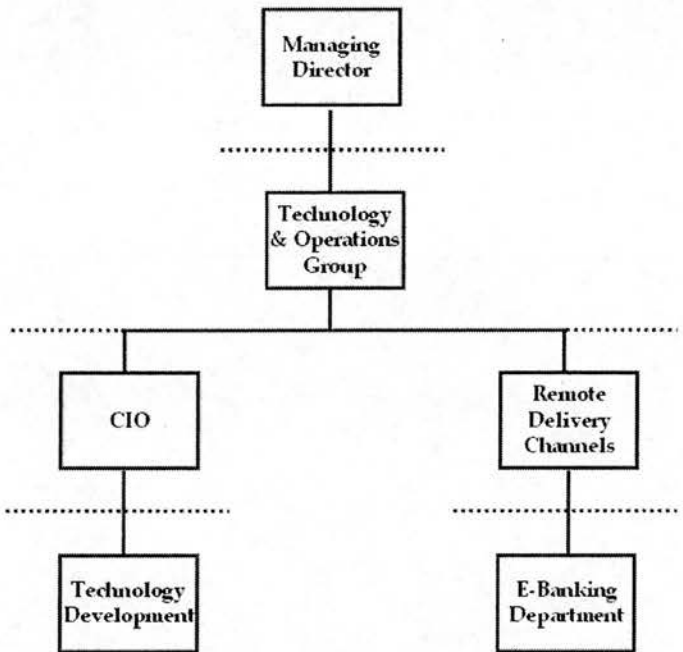


Figure 8.3.I Organisational structure of the Technology & Operations Group (AlAhli survey 2003: CIO)

In order to perform its tasks, the Technology & Operations Group makes extensive use of many ICT applications, including specially developed applications, office automation, client/server, and DBMS. It implements e-business transactions in many areas mainly in funds' transfer and investment. Table 8.3.I provides ICT related information about AlAhli's main departments as of 2002. Clearly, AlAhli's e-banking is predominantly retail banking as the share of the Retail Banking Group is the largest in most areas.

Group	Retail	Corporate	Investment	Treasury
Workforce (%)	47	2	2	2
Operating expenses (approx SAR m)	762	NA	45	NA
ICT applications	Office automation, ready made applications, client services and DBMS	e-mail and banking applications	Word-processing, e-mail and customer and portfolio software	word-processing, e-mail, Bloomberg, Reuters and treasury front and back office systems
Since	1994	NA	2002	2003
Areas	ATMs, Call Centre, POS, & Internet	NA	E-Banking provides services so that Customers can do entire transactions	FX spot and time deposits products

Table 8.3.I Intra-organisational relationships at AlAhli with the Technology & Operations Group (AlAhli survey 2003)

Many features characterise AlAhli's e-banking technological system, including security, integrity, performance, stability, the ability of integration with other systems, minimum brand/product dependency, and flexibility and ease of maintenance and upgrades. Its major performance specification is the speed of access. This includes the session's establishment and termination time and online/offline transaction time. Although such major performance specification does not enable the provision of a completely new service, it implies a major cost-performance improvement in relation to previous systems.

In 2003, the Technology & Operations Group started an integrated ICT project aiming to redefine the ICT systems' architecture at AlAhli. This has been done through redefining the front-office systems (i.e. e-channels & branches' ICT), back-office systems (i.e. core banking systems), the main support components for these two systems, major databases (e.g., HRM & Finance), networks, and links with external networks (e.g., SARIE, Swift, etc), security systems, and management systems for managing all the above components. Figure 8.3.II visualises the ICT systems' architecture at AlAhli.

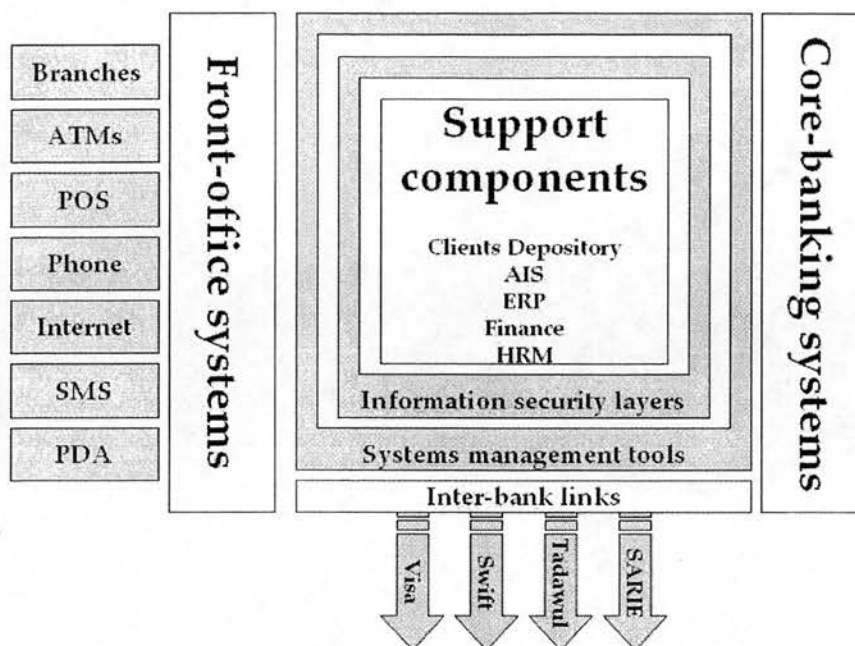


Figure 8.3.II AlAhli's ICT systems' architecture (CIO)

The types of technologies used in the e-banking technological system are not limited to standard mature technology. Custom-made applications are used as well. This integration allows the development of a new proprietary technology. The hardware components of the system are based on a client/server technology and run on Intel clustered small-scale servers. The software component consists of a group of applications, including specially developed applications, office automation and custom-made applications. Such hardware and software components are linked via LAN and WAN networking technologies.

There is a strategic reason for taking this approach in the build-up of the e-banking technological system. The group strategy in the gradual launch of tested and competitive e-banking products and services requires the use of the best available technology, including the internal development of those not available on the market. This produces a technological system that is not only very innovative in terms of both technology and services, but also very demanding in achieving the anticipated performance. The risk of failing to deliver the system in terms of cost is SAR 250 k while that of time is three months.

The specifications of the e-banking technological system have evolved in the course of development through the follow-up of the latest technologies and updates on the existing technologies. According to CIO, the Technology & Operations Group has prioritised the e-banking technological components as follows:

1. Core banking systems
 - a. Accounts management systems

- b. Treasury systems
 - c. Payment systems
- 2. Channels
 - a. Branches
 - b. E-Channels (ATMs, POS terminals, Internet banking, etc.)
- 3. Structured investment application, for example, is not a major application at the bank because we are mainly a retail bank and such application is dedicated to service corporate banks.

The adoption of the e-banking technological system required IT people to learn new technical skills, such as software languages. To ensure that this happens, the department not only provides IT people with training courses and on-the-job training, it also supports them to obtain technical certificates, such as Cisco Certified Network Professional and Sun Certified Network Administrator. Table 8.3.II lists AlAhli milestones toward modern e-banking.

Year	System/Service	Description
1991	ATMs	Automated tellers machines
1993	POS terminals	EFT at POS
1998	AlAhliPhone	A telephone banking service via IVR
1999	AlAhliDirect	A PC banking dial-up solution
2000	AlAhliOnline	Retail Internet banking
2002	AlAhli Brokerage	International stock trading service over Internet
2003	AlAhliMobile	A mobile banking service via WAP technology
2003	AlAhliSMS	A mobile banking service via SMS technology
2003	AlAhli eCorp	Corporate Internet banking, final launch
2004	AlAhliTadawul	Local stock trading service over Internet
2005	AlAhliPDA	A mobile banking service via PDA technology

Table 8.3.II AlAhli e-banking milestones (e-Banking Head)

Most of the technologies used in the e-banking technological system are transparent to customers. This can be tested during the process of updating the existing version of a certain technology with a newer one. For example, when the department updated AlAhli Online, the Internet banking service, with a new version to enhance the performance, online customers did not notice the change other than the increase in performance. The actual updating process usually occurs after testing and piloting the technology for usability purposes. Another example is AlAhliPhone. Figure 8.3.III shows the achievements of the service as of 2001 (Al-Shaikh 2002).

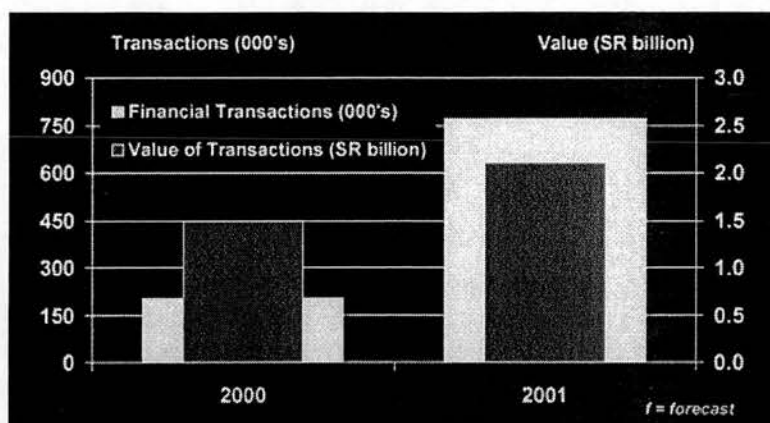


Figure 8.3.III Achievements of AlAhliPhone as of 2001 (Al-Shaikh 2002: 19)

Moreover, ATMs are also achieving healthy results. Table 8.3.III shows that the percentage of AlAhli's active e-cards is higher than that of the sector. It also shows that AlAhli's ATMs provide more services than the sector's ATMs do as the ratio of withdrawal transactions to total transactions.

Year		Withdrawal/Total transactions		% Active e-cards
		Ratio	Average amount (SAR)	
1999	AlAhli	61	978	67
	Sector	61	2,651	74
2000	AlAhli	66	1,035	76
	Sector	68	1,253	77
2001	AlAhli	67	962	83
	Sector	59	1,285	72
2002	AlAhli	66	1,940	94
	Sector	60	1,414	80
2003	AlAhli	58	987	85
	Sector	53	1,162	80
5-Year Average	AlAhli	63	1,180	81
	Sector	61	2,651	74

Table 8.3.III AlAhli's ATM usage trend (BTC 2004)

The IT strategic planning follows a formal mechanism. It consists of a chain of three inter-related strategies: IT Strategic Business Plan, IT Operating Plan, and Plan of Unplanned IT projects. AlAhli's CIO describes the mechanism of IT strategic planning:

"We have three types of plans. First plan is the IT Strategic Business Plan which is a 3-5 years plan. It includes what and how we will service the objectives of the bank. Our group, with the input from the Executive Committee, writes this plan. Second plan is the IT Operating Plan which is a 1-year plan that has been extracted from the IT Strategic Business Plan. We write this plan and it is mainly related to IT projects priority. The third plan is related to unplanned IT projects. Within a year, we usually have urgent or unplanned projects. Therefore, we have to consider such projects in the Operating Plan. In addition, to perform such tasks, we dedicated a portion of our workforce and budget to furnish such projects."

The story of e-banking development at AlAhli has gone through various stages. While during some stages the achievements were significant, during other stages, the achievements have been more mixed. The remainder of this section briefly discusses the current state of the AlAhli e-banking constituency. The “diamond of alignment” (Molina 1995) selected for the analysis is a two-layered intra- and inter-organisational diamond given that important features of the AlAhli e-banking constituency-building process are the result of intra- and inter-organisational interactions between AlAhli and other organisations.

8.3.1 (I-II) Constituents’ perceptions, goals, actions and resources

The AlAhli e-banking constituency has grown in strength over the years and today counts on both a strong presence inside the bank and a wide range of products and services in the market. A high level of ICTs literacy at the bank reflects a culture of innovativeness that supports the e-banking constituency. The Technology & Operations Group commands significant strategic powers and economic roles as it develops and launches almost all forms of e-banking products and services. It handles all aspects related to e-banking.

The Technology Development handles the technical aspects of e-banking. The operational and business aspects of e-banking are handled by the Remote Delivery Channels. About 35 employees and an annual budget of SAR 17 m have been allocated to the Remote Delivery Channels. The AlAhli e-banking products and services have achieved very healthy results. Intra-organisationally, for example, 70% of transactions are now done through e-channels compare to 20% during the mid-1990s.

Many promotional activities have been implemented, including advertisements via Intranet and Horizons Magazine, a monthly internal publication. While some e-services have achieved healthy results, others have had a more mixed performance. For example, the average number of calls via AlAhliPhone hit 200,000 compared to only 200 calls ten years ago (see Figure 8.3.III). ATMs are also doing fine with the percentage of AlAhli’s active e-cards higher than that of the sector and AlAhli’s ATMs providing more services than the sector’s ATMs do at the ratio of withdrawal transactions to total transactions. At the same time, AlAhliOnline has so far attracted only 10-15% of retail customers.

8.3.2 (II-III) Nature and maturity of the technology

Standard mature technologies and custom-made applications constitute the e-banking technological system (see Figure 8.3.II). The hardware components are based on a client/server technology and run on Intel clustered small-scale servers. The software components consist of a group of applications, including specially developed applications, office automation and custom-made applications. LAN and WAN networking technologies link such components. The risk of failing to deliver the system in

terms of cost is SAR 250 k while that of time is three months. The prioritisation of ICT development is core banking systems, channels, and structured investment applications (see Alignment 4-4i).

8.3.3 Alignment (1-1i) – Organisational governance

The IT decision-making process at AlAhli is a mixture of highly centralised management and a culture of participation. The long-term ICT policy and strategy is defined by the BODs, Managing Director, and heads of groups. The Technology & Operations Group participates with other groups through the IT Strategic Business Plan and IT Operating Plan to plan for IT projects. Such intra-organisational governance positively influences the development of the e-banking constituency. Inter-organisationally, however, the lack of legislative rules and regulations on e-banking creates undesirable obstacles to its development.

8.3.4 Alignment (2-2i) - Target constituents' perceptions and pursuits

The original vision of e-banking is on course. Intra-organisationally, the remaining target constituents continue to be approached by, for instance, the promotional activities that include advertisements via Intranet and Horizons Magazine. Moreover, the appointment of the former Banking Technology Head at SAMA as VP of Technology & Operations Group formed a "SAMA-to-AlAhli" human resources shift as many SAMA's technical staff gradually became AlAhli's technical staff. For example, the head of SAMA's Computer Department became the head of AlAhli's Technology Development. The SPAN's Information Security Administrator became AlAhli's Information Security Consultant. Additionally, SAMA's staffs have been appointed at different operational levels at AlAhli.

The inward trend of "SAMA-to-AlAhli" was parallel with an outward trend (i.e. "AlAhli-to-banks"). For example, the e-Banking Manager AlRajhi who lead the development of many components of EBBDA-2 was formally AlAhli's e-Banking Business Analyst. An interesting story is behind the shift from AlAhli to AlRajhi in 2002. According to AlAhli's Head of Remote Delivery Channels, the initiative of AlRajhi's bill payment gateway was initiated at AlAhli via a negotiation between AlAhli and STC. AlAhli appointed the former AlAhli's e-Banking Business Analyst to negotiate with STC on the development of the project.

During the negotiation phase, AlRajhi suddenly acquired AlAhli's e-Banking Business Analyst to lead the emerging e-Banking Department at AlRajhi. The acquisition was followed by an announcement from AlRajhi about finalising an e-banking agreement with STC to furnish the market with a new e-banking service (i.e. bill payment gateway). AlAhli, shocked with such announcement, started new talks with utilities companies to provide similar e-banking services for electricity and water bills. Although AlAhli managed to sign bill payment gateways contracts with utilities companies, the accompanied amount from such contracts is much lower than that with STC.

Inter-organisationally, however, the current figure of 10-15% of retail customers matches expectations, but maintains the challenge of increasing market share by transforming target customers into effective constituents. For example, the percentage of active e-cards increased by 12% per year during 1999-2002. Such figures, however, decreased by 10% during 2002-2003 (see Table 5). It seems that the e-banking constituency faces some challenges, such as the incorporation of new technologies to reinforce the competitive performance of the overall system (see Figure 5 & Alignment 4-4i).

8.3.5 Alignment (3-3i) - Nature of target problem

E-banking started in 1999 with the target of improving the quality, quantity, efficiency, and accuracy of banking services as well as generating revenue and increasing the market share. The development approach was a combination of both following the steps or examples of other banks and taking pioneering steps with little existing precedence. The initial estimated cost, time and people required for the development and implementation were about SAR 1 m, three months and five people, respectively.

At the introduction stage, however, funding and people increased to SAR 4 m and to 17 people, increasing almost four-fold the constituency's resources to deliver. On this basis, the AlAhli e-banking constituency has been making good progress towards its original target problem, especially as its capacity to deliver has continued to grow (35 people and 17 m SAR), keeping abreast with the progress of technology. Further increases in market share from the current 10-15% present a strong target problem, but one that seems to be at the reach of the constituency.

8.3.6 Alignment (4-4i) - Interacting technologies/constituencies

Intra-organisationally, the e-banking technological system is blending with the legacy of systems previously in place. The relationship is not completely efficient as the system is sacrificing performance, in particular, as the new technologies accumulate. The e-banking technological system also relates to other new systems in the processes of development and implementation through regular co-ordination among different managers of projects, services, or channels. Inter-organisationally, AlAhli e-banking technology operates within with SAMA's payment systems, such as SPAN. In relation to other technologies, it is possible to say that, in general, the adoption of the e-banking system increased the size of the overall AlAhli business and reduces the work load on branches (see Alignment 3-3i).

8.3.7 Summary

The above discussion on the state of the AlAhli's process of sociotechnical suggests that AlAhli has achieved a significant degree of alignment in some dimensions of the "diamond of alignment" (Molina 1995) and more mixed results in other dimensions. The progress of AlAhli in creating value

through e-banking has been significant considering the bank's long period of decline that ended in the 1990s. Based on the above discussion, results reveal that the implementation of e-value creation strategies at AlAhli is aligned with the bank's corporate policy of aiming to be the premier provider of Islamic banking and investment.

8.4 Conclusion

This chapter investigated the emergence and evolution of e-banking at AlAhli. It provided a brief overview of AlAhli and some of the key events shaping its developments in almost 60 years of existence. It then looked in some detail at the particular development of e-banking at AlAhli through the conceptual lens of the "diamond of alignment" (Molina 1995). Today AlAhli's performance in both financial and technological terms is healthy and is likely to remain so for the foreseeable future. It is worth stressing that the implementation of the e-business strategic approaches requires high degrees of alignment with the organisational and industrial corporate policies. The choice of e-business strategic approaches by organisations depends not only on the capabilities of the organisations, but also on the opportunities the industry provides.

Chapter 9: Riyadh Bank

9.1 Introduction

This chapter investigates the emergence and evolution of e-banking at Riyadh⁵⁵. It provides a brief overview of Riyadh and some of the key events shaping its developments in almost 60 years of existence. It then looks at the particular development of e-banking through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 9.1.I provides information related to interviews conducted at Riyadh⁵⁶.

Interviewee	Date
VP IT	August 2003 ⁵⁷
Head of IT & Operations	December 2003
Internet Banking Head	December 2003
Head of Remote Delivery Channels	January 2006
e-Channels Quality Unit Head	January 2006

Table 9.1.I Interviews conducted at Riyadh

9.2 Brief overview

“We will be the leading Saudi Bank, first in quality, first in value, first in caring for our customers and responding to their needs by continuously improving our services while enhancing our shareholders’ value,” (Riyad 2005: 2).

Based on this mission statement, Riyadh started operations in 1957 as the first Saudi joint-stock banking company. The initial capital of SAR 50 m was increased to SAR 4,000 m in 1994, to SAR 5,000 m in 2005, and finally to SAR 6,250 m in 2006, amounting to 14% of the sector capital. While the Saudi government owns 29%, Saudi individuals own the remaining 71% of Riyadh’s share capital.

⁵⁵ The first initial version of Riyadh’s case study can be found at: Al-Jadeed, M. & Molina, A. 2005d. Beyond the resource-based view of the firm: The case of dynamic capabilities building at a Saudi bank. In Proceedings of the 5th IBIMA Conference on the Internet and Information Technology in Modern Organisations. Cairo: Egypt. 13-15 December. 320-345. The second initial version of Riyadh’s case study can be found at: Al-Jadeed, M. & Molina, A. 2007. Resource-based or dynamic capabilities: The case of Riyadh Bank, in Soliman, K. S. (ed.) 2007. e-Business impact on supply chain and business process: Analysis and Best Practice. IBIMA Press: New Your. Forthcoming Spring 2007. Electronic copies from the papers are attached as a part of Appendix III with permissions from both the publisher, International Business Information Management Association (IBIMA), and the co-author, Professor Alfonso Molina.

⁵⁶ I wish to express my deep thanks to Riyadh’s interviewees for their positive and open attitude to the research questions. Also, I wish to thank Riyadh’s Finance Group for administering the survey, and all other groups and divisions who responded to the survey.

⁵⁷ Pilot Study

During its life, Riyad has undergone several financial and technical changes that have shaped its present form. In the early 1980s, Riyad embarked upon a massive expansion program, including overseas expansion, in an effort to bring itself in line with developments in the world's financial markets. With the signs of recovery in the Saudi economy towards the end of the 1980s, Riyad started reaping some benefits and its net income position showed a slow upward movement. However, the mounting costs of the branch expansion as well as the unsteady revenue position during this phase forced Riyad to re-think its strategy.

During the 1990s, Riyad took the initiative by providing an extended range of services to retail and corporate customers. It also expanded technical initiatives in its mandate to improve customer service by standardising branch-banking procedures. However, according to Al-Dukheil (1995), Riyad was a rather late starter in absorbing technology in operations and control.

Currently, Riyad has about 3,500 employees and operates about 200 branches throughout Saudi Arabia dedicated to serve about 600,000 retail and 19,000 corporate customers. It also operates three overseas offices in London, Houston, and Singapore that specialise in providing offshore banking products to its corporate customers. Riyad furnishes customers with about 600 ATMs and 3,200 POS terminals, in addition to many forms of modern e-banking products and services, including Internet, telephone, and mobile banking (see Table 9.2.I).

%	<i>For years ended December 31</i>			
	<i>1988</i>	<i>1993</i>	<i>1998</i>	<i>2003</i>
Branches	17	16	17	16
Total assets	18	18	19	13
Total liabilities	17	18	19	13
Share capital	2	0	29	16
Net income	22	20	17	13
ATMs	NA	12	15	16
POS terminals	NA	1	10	13
e-Cards issued	NA	14	14	14

Table 9.2.I Riyad market share positions (%), 5-year periods (Al-Duhkeil 1995; Tadawul 2006)

9.3 Some key events

Riyad has faced many challenges since its creation. However, four key events required Riyad not only to re-structure itself, but also to re-align its strategy. Such events are the government supervision, technology, Islamic banking, and most recently a new look. The following gears the discussion on these four events.

9.3.1 Government supervision

Riyad faced a crisis during the early years of the operation. Most of the BODs took loans from Riyad and could not repay them. To restore confidence, SAMA appointed a new BODs and the Ministry of Finance started to supervise Riyad directly. During the mid-1990s, Riyad achieved healthy financial

performance and this led the government to stop its direct supervision. Consequently, Riyadh's first general meeting of shareholders in 33 years was held in October 1995, at which the shareholders elected a new BODs (Riyad 1996). Riyadh's Chairman highlights Riyadh's direction after the end of the government's supervision (Riyad 1996: 4-5):

"The decision by the government to end its supervision was a result of [Riyad]'s excellent financial position as demonstrated by its substantial capital resources... This development was well received by both our customers and shareholders as well as by the banking community. It enabled [Riyad] to fully exercise its role as a leading commercial bank managed by its shareholders... Riyadh continued with the development of its infrastructure and the implementation of sophisticated automated systems. These will promote faster and more efficient delivery of quality banking services and enhance work procedures to cope with the dynamic changes occurring in the banking industry... I am pleased to see that some of these programs are already bearing fruit and positively influencing many aspects of our business. The task is not complete, but we are confident that we will be able to undertake the necessary work to further develop and improve our products and services, leading to success and prosperity for the benefit of our valued clients and shareholders."

9.3.2 Technology

As stated earlier, Riyadh was a rather late starter in absorbing technology in operations and control. In 1999, Riyadh implemented a new core banking system to blend with the legacy systems in place. The new core banking system aimed "to provide customers with a faster service and to enhance staff efficiency and productivity," (Riyad 2000: 11). This was followed in 2000 by two important developments: "Journey to Excellence" program and Technology Strategic Plan. "Journey to Excellence" was a comprehensive change program aiming at improving productivity through accelerating development of staff skills and capabilities as well as enhancing customer service. Within the "Journey to Excellence," Riyadh has started to establish Staff Assessment Centres. The aims of these centres are to identify the competencies and capabilities of staff, to develop their core skills, to define the appropriate career path for them and to set up succession plans. Technology Strategic Plan however was a three-year corporate policy designed to achieve an advanced position in the application of banking technology. The plan identified the technological advancements until 2003 (Riyad 2001). Table 9.3.I lists the systems and applications launched under the umbrella of the plan.

Year	System/application	Description
1999	Core Banking System	Back-office system
2000	RiyadLine	A telephone banking service
2002	Payment Centre	A payment and clearing centre that encompasses SARIE, Swift and governmental operations
2002	International Operation Centre	A centre that handles treasury and investment operations
2002	RiyadNet	Remote banking service providing combined remote banking services for retail and corporate customers
2003	RiyadOnLine	Retail Internet banking
2003	SMS and e-Mail Notification	A notification service for fund transfer, time deposit renewals and loan maturities
2003	Profitability Tracking System	A system tracks the customers' profitability to improve

		cross-selling ratios and fee generation model
2003	Trade Finance	Corporate Internet banking
2003	Automated Anti-Money Laundering	A SAMA mandate
2004	Branch Operations Support Centre	A communication and interaction application between Head-Office and branches
2003	RiyadMobile	Mobile phone banking
2005	Riyad Tadawul	Local stock trading service over Internet

Table 9.3.1 Systems & applications of Riyad's Technology Strategic Plan (Riyad 2001; 2003; Riyad survey 2003)

9.3.3 Islamic banking

Riyad was a rather late starter not only in absorbing technology in operations and control, but also in expanding the production lines to include Islamic banking. In 2002, Riyad introduced Islamic banking through setting up the Sharia'h Committee and a specialised department of Islamic banking activities (Riyad 2003). The main reasons for providing Islamic banking were to:

1. Address better customer base of Islamic banking needs.
2. Meet competitive markets locally and regionally.
3. Broaden the bank's products and services base.
4. Increase business and profitability.

9.3.4 A new look

Riyad is not only closely associated with the three essential elements of the Saudi economy (i.e. oil, agriculture and industry), it had symbolised them in its logo. Riyad undertook a major restructuring plan during 2004 aiming to attract new customers, to develop the quality of service and to increase profits. Accordingly, Riyad started the plan with the launch of a new logo that reflects simplicity, modernisation, building personal relationships and empowering customers with a better understanding of their needs.

9.4 The development of Riyad e-banking constituency

Figure 9.4.I Riyad's organisational chart (Riyad survey 2003; Riyad 2006) visualises the organisational structure of Riyad. As we can see, the organisation is decentralised, as is the case at many Saudi banks. The daily matters of e-banking are handled by the Operations Division through the Remote Delivery Channels Department. The technical developments of e-banking, however, are handled by the Technology Division. Both divisions are grouped into entity, Operations & Technology Group. The Remote Delivery Channels Department is the organisational core of the Riyad e-banking constituency. It operates all e-banking services, including ATM, POS terminals, telephone, Internet, and mobile banking. The department also works horizontally across the

organisational structure with other groups, such as Retail Banking Group, in all business aspects relating to the development of e-banking products and services.

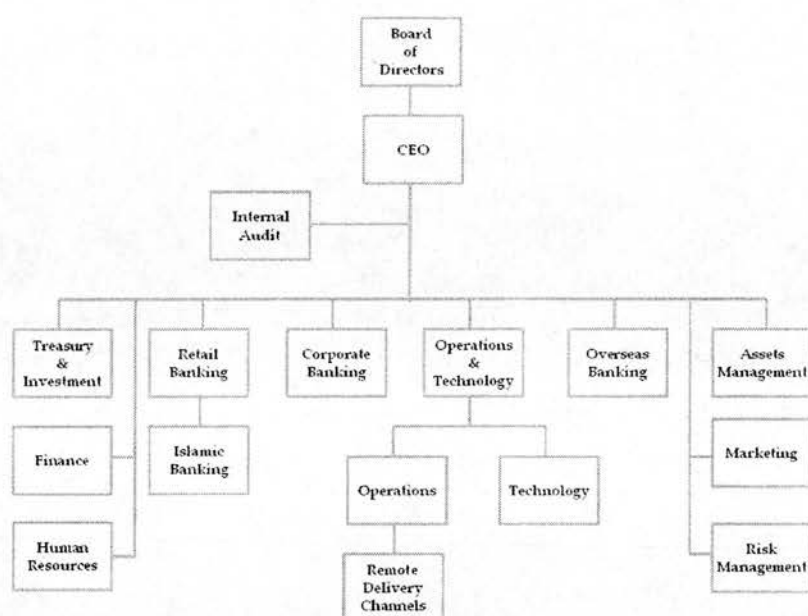


Figure 9.4.I Riyadh's organisational chart (Riyad survey 2003; Riyad 2006)

Table 9.4.I provides information about both the organisational background of Riyadh's main groups and the organisational relationships between the Remote Delivery Channels Department, and the main groups. At present, the Remote Delivery Channels Department commands modest economic and strategic roles. Its workforce and annual budget constitute about 3% and 2% of Riyadh's total, respectively. There are three reasons for this (a) that the technology has emerged only recently in Riyadh's groups, (b) most of the technology comes from outside vendors, and (c) the type of ICT applications have been basically mature technology.

Group	Retail	Corporate	Investment	Treasury
Workforce (%)	60	5	2	1
Budget size	2 nd	3 rd	1 st	4 th
ICT since	1990	1998	1995	1995
ICT applications	Desktop	Desktop, CRM & CREDIT	Desktop	Desktop & Treasury
Interaction with e-Banking Department	Yes	Yes	No	No
Since	1997	2001	NA	NA
Areas	Most retail banking	Internet banking	NA	NA
Ways	Products/services delivery, support & maintenance	Products/services delivery, support & maintenance	NA	NA

Table 9.4.I Intra-organisational relationships at Riyadh with Remote Delivery Channels Department (Riyad survey 2003)

The implementation of the core banking system as well as the gradual launch of e-banking products and services has produced a largely fragmented IT system. The system is technically demanding in terms of operation, support, enhancements and problem solving, hence there are risks of failing to deliver in terms of cost and time. From the cost point of view, the nature of turn-key assignments to IT vendors made the system's initial cost higher than traditional projects managed by the Technology Division. Following the roll-out phase, however, the matters of cost have improved. Currently, the system does not incur high permanent expenditure in resources and operational fees as most new developments are outsourced at a semi-fixed price.

From the time point of view, however, the lack of knowledge in the development of e-banking products and services translated into delays in delivery. This issue lasted until the Technology Division finalised the e-services architecture and established the standards. From here onwards, the division delivers most of the e-banking products and services in due time. Figure 9.4.II illustrates the e-services architecture of Riyad.

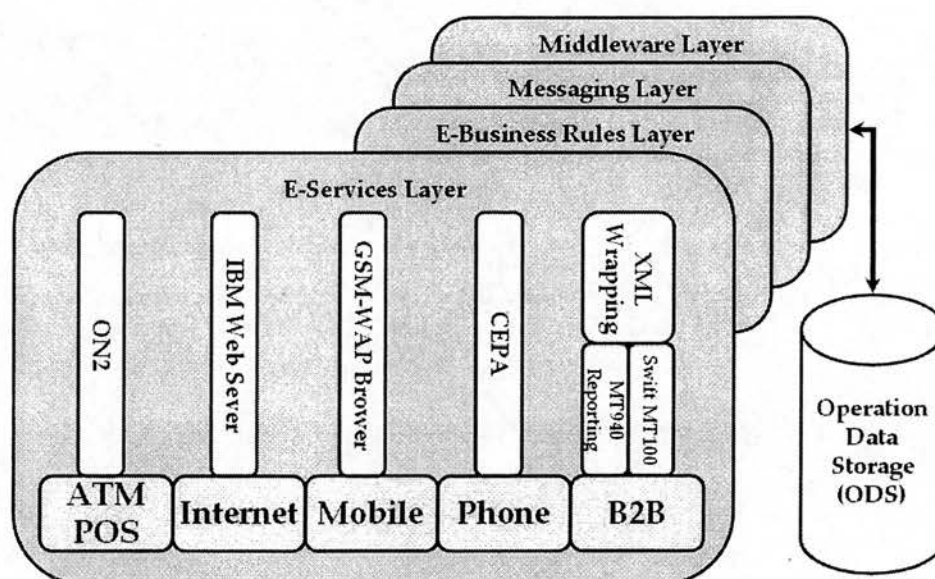


Figure 9.4.II Riyad's e-services architecture (Riyad survey 2003)

The Head Riyad's Internet Banking highlights Riyad's role in the process of the technology development:

"I do not think the department has a tradition and culture of innovativeness. This is because our strategy in IT development is to acquire ready made IT solutions rather than developing new ones. We have strategic alliances with some IT vendors to handle all the IT development tasks. Our role concentrates on integrating different IT packages with each other and coordinating the IT development process."

The story of e-banking development at Riyad has gone through many stages. At some stages the achievements were significant, for instance, the implementation of the unifying e-Services

Architecture. At other stages, however, the achievements have been more mixed, for instance, the market results of e-channels have not met expectations with a penetration rate of only 5%.

The remainder of this section briefly discusses the current state of the Riyadh e-banking constituency. The “diamond of alignment” (Molina 1995) selected for the analysis is a two-layered intra- and inter-organisational diamond, given that important features of the Riyadh e-banking constituency-building process are the results of intra- and inter-organisational interactions between Riyadh and other organisations.

9.4.1 (I-II) Constituents’ perceptions, goals, actions and resources

The Technology Strategic Plan has framed the evolution of the economic and strategic roles of the organisational core of the constituency, namely, the Remote Delivery Channels Department. The workforce and the annual budget of the department constitute about 3% and 2% of Riyadh’s total workforce and budget, respectively. The use of many ICT applications and technologies are widespread within the department, including ready-made and client/server applications. Although the department does not implement any degree of e-transactions or e-commerce with other departments, it does use its ICT applications and technologies to operate many e-banking products and services (see Table 9.3.I). The department is characterised by a modest degree of innovativeness although it pioneered some services, such as Traffic Payments Fines via ATMs.

The launch of the “national champion” strategy has enhanced the position. According to the Head of e-Channels Quality Unit, the “national champion” is the new corporate policy of Riyadh. It was launched at the end of 2005 to become a base for Riyadh’s potential road map during the remainder of the decade. It not only provides Riyadh’s vision and objectives, but also identifies the relationship between Riyadh’s sections, departments, and divisions. The potential position of Riyadh is an additional focus of the policy.

Beyond the borders of Riyadh, the market results of e-channels have not met the expectations as the penetration rate is only 5% and the launch of Riyadh Tadawul incurred a two-year delay (see Alignment 4-4i). Also, the nature of turn-key assignments to IT vendors and the lack of development knowledge have meant additional development costs and delays in delivery.

9.4.2 (II-III) Nature and maturity of the technology

The e-banking technological system only uses standard mature technologies. Its hardware components consist of a group of mini-computers that are based on client/server architecture. Such components run a group of specially, ready-made and stand-alone applications. A secure extranet grants access to the e-services network (see Figure 9.4.II). The system is rather technically demanding in terms of operation, support, enhancements and problem solving. The infrastructure and e-services architecture, in addition to individual channels technology were built mostly by IT vendors and consultants.

9.4.3 Alignment (1-1i) – Organisational governance

A highly centralised management rules the IT decision-making process, even though the overall bank structure is decentralised. The process is fundamentally based on the authority and trust of executive management as well as on risk management, security management, financial management, and business strategy. Such intra-organisational governance positively influences the development of e-banking, although more risks should be taken in relation to e-banking initiatives. Inter-organisationally, however, the lack of legislative rules and regulations create undesirable obstacles to the development of e-banking. The collaboration with other banks in the e-banking area is an example. The Internet Banking Head highlights the failure of collaboration with other banks in providing e-banking products and services:

“In the past, we thought about collaborating with other banks in providing e-banking services but [certain] issues prevented us from doing so. For example, we had a discussion with one of the Saudi banks in providing a single Internet banking channel for both of us. The other bank was reluctant to allow our systems to talk with its system because of information security reasons. Therefore, I think collaboration among banks does not exist without the supervision and control from SAMA as in the case with SARIE and SPAN.”

9.4.4 Alignment (2-2i) - Target constituents' perceptions and pursuits

Given the modest market penetration of Riyadh's e-banking products/services, it is clear that there is a lot to do in relation to target users. In this respect, the launch strategy can be judged as conservative, as it offered a single product or service via a single e-channel, then gradually, expanded it over to other e-channels. For example, RiyadhPhone started in 2001 with a simple accounts inquiry. The development process involved some customers during the piloting stage only. Some promotional strategies to tackle the issue of low penetration rate have been conducted through different media channels. For example, Riyadh activated a marketing campaign during January 2004 that gives a laptop for e-customers drawn as winners. Table 9.4.II shows that the percentage of Riyadh's active e-cards is much lower than the sector's average. It also shows that Riyadh's ATMs provide average services as the ratio of withdrawal transactions to total transactions is almost the same as that of the sector.

Year		Withdrawal/Total transactions		% Active e-cards
		Ratio	Average amount (SAR)	
1999	Riyad	61	1,544	45
	Sector	61	2,651	74
2000	Riyad	65	1,165	55
	Sector	68	1,253	77
2001	Riyad	55	1,158	44
	Sector	59	1,285	72
2002	Riyad	53	1,126	45
	Sector	60	1,414	80
2003	Riyad	52	1,126	52

	Sector	53	1,162	80
5-Year	Riyad	61	1,544	45
Average	Sector	61	2,651	74

Table 9.4.II Riyadh's ATM usage trend (BTC 2004)

9.4.5 Alignment (3-3i) - Nature of target problem

E-banking complements the traditional products and services and it does not include completely new financial products or services. The vision behind e-banking was "to provide rapid, flexible, convenient, and robust secured e-banking channels," (Riyad survey 2003). The challenge of the bank's mission statement to be the leading Saudi bank is yet a target to be achieved as far as the e-banking products of the Riyadh constituency is concerned. Here it is important to consider that, although the online interface and navigation of e-banking are user-friendly and intuitive for the customers, e-banking implies a cultural change in relation to the traditional products and services. Such change is one of the proposed objectives of the emerging e-Channels Quality Unit. According to the Unit's Head, the unit will focus on improving the quality of all e-channels as one of the consequences of the "national champion" strategy.

9.4.6 Alignment (4-4i) - Interacting technologies/constituencies

The degree of interaction between the e-banking technological system and other IT systems fluctuates between good and problematic. From one viewpoint, the system is blending with the legacy systems in place. Some enhancement tools implemented lately have reduced the initial performance problems. The implementation of the system has implied some changes in skills and training of employees. All of the skills and training requirements are focused towards the operation and business support of the e-services (see Alignment 2-2i). From another viewpoint, the e-banking technological system must align with other new systems in the process of development and implementation. Such relationship implies re-working the processes and procedures, designing new processes, going through a very severe and stringent testing cycle and implementing several standards and rules relating to security, risk management, and audit. For example, Riyadh Tadawul started in 2005 although the system was in place at the start of 2001.

9.4.7 Summary

The assessment of the e-banking constituency-building process suggests that Riyadh has a great deal to do to achieve a strong alignment across all the dimensions of the "diamond of alignment" (Molina 1995).

9.5 Conclusion

This chapter investigated the emergence and evolution of e-banking at Riyadh. It provided a brief overview of Riyadh and some of the key events shaping its developments in almost 60 years of existence. It then looked in detail at the particular development of e-banking at Riyadh through the

conceptual lens of the “diamond of alignment” (Molina 1995). The implementation of e-value creation strategies at Riyad is rather mixed from the point of view of the bank’s declared mission of becoming “the leading Saudi bank.”

Chapter 10: The Saudi Capital Market

10.1 Introduction

This chapter investigates the emergence and evolution of the trading, clearing and settlements system of securities in the Saudi Capital Market (i.e. Tadawul)⁵⁸. It provides a brief overview of the Saudi capital market, formally Saudi share market, and some of the key events shaping its developments in almost 25 years of existence. It then looks at the particular development of Tadawul constituency through the conceptual lens of the “diamond of alignment” (Molina 1995). A policy recommendation concludes the chapter. Table 10.1.I provides information related to interviews conducted at Tadawul, CMA and SAMA⁵⁹.

Interviewee	Date
Tadawul Managing Director (MD)	January 2004
Banking Technology Department (BTC) Manager, SAMA	January 2004
SARIE Manager, SAMA	September 2004
General Counsel, Capital Market Authority (CMA)	January 2006
Tadawul R&D Manager	January 2006

Table 10.1.I Interviews conducted at the Saudi Capital Market and SAMA

10.2 Brief overview

Although the Saudi share market opened officially in 1984, its origins go back to 1935 when the shares of the Arab Automobile Company were floated to handle the rising imports of automobiles. The public offering of companies continued and the number of public companies reached 14 by 1975, particularly cement and electricity companies.

⁵⁸ An initial version of Tadawul’s case study can be found at: Al-Jadeed, M. & Molina, A. 2006a. Toward a taxonomy of strategic approaches to capabilities building and value creation: the case of the Saudi Arabian Capital Market. In Proceedings of the 15th Conference of the International Association for Management of Technology (IAMOT 2006). Beijing: P.R. China. 22-26 May 2006. An electronic copy from the paper is attached as a part of Appendix V with permissions from both the publisher, International Association for Management of Technology (IAMOT), and the co-author, Professor Alfonso Molina. The Tadawul’s case study also has been presented at the 13th Global Finance Conference. Rio de Janeiro: Brazil. 26-28 April 2006. The abstract, entitled “e-Capital capabilities building and value creation: The case of the Saudi Arabian Capital Market”, is available online at <http://www.coppead.ufrj.br/gfc/>. Appendix III involves an electronic copy from the abstract. It also has been accepted for presentation and publication at Africa Telecommunication and ICT Conference. Nairobi: Kenya. 17-21 May 2006.

⁵⁹ I wish to express my deep thanks to the interviewees for their positive and open attitude to the research questions.

The rapid economic development and Saudisation of foreign banks in the 1970s led to the establishment of a number of large corporations and joint venture banks (Tadawul 2006). It also provided an opportunity for independent share brokers to come in to handle secondary share market transactions. The business was so profitable that the share market saw brokerage houses topping up 45 in 1978. Shares continued to be exclusively traded through share brokers until the end of 1984 (Banafe 1993).

During that time, the state of the informal share trading market was similar to that of the neighbouring country, Kuwait. The Kuwaiti share market was established in 1978. As a result of the government ban on the creation of public companies, Souk Al-Manakh, a parallel stock exchange, evolved in 1979 as a totally unregulated market for Kuwaiti-owned, Gulf-based companies that did not meet the official exchange listing requirements. Following the authorities' relaxation of the ban on forward trading in 1981, prices in both Souk Al-Manakh and Kuwait share market rose sharply. The market continued to climb until it collapsed in mid-May 1982⁶⁰ (Hassan et al. 2003).

The collapse of Souk Al-Manakh had a startling impact on the Saudi share market and its momentum. There has since been a continuous process of examining and improving the efficiency of the market through improvements in trading and settlements (Banafe 1993).

In an attempt to avoid a similar case to that of the collapse of Souk Al-Manakh, the Saudi government formed in 1984 a ministerial committee consisting of the Ministry of Finance and National Economy, Ministry of Commerce and SAMA to regulate and develop the share market (Tadawul 2006). The immediate decisions to regulate the market were:

1. SAMA was charged with the day-to-day regulation of the share market.
2. Share trading intermediation was restricted to banks⁶¹.

⁶⁰ In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled "Souk Al-Manakh", at Aleqtisadiah Newspaper (Issue No. 4519, Date: 24/02/2006). The article summarised some lessons from the collapse of Souk Al-Manakh. It also compared the market's situation of Souk Al-Manakh prior to the collapse with that of the Saudi Capital Market prior to the February 2006's strong correction. See Appendix IV.

⁶¹ IT plays a vital role in extending trading hours, bypassing brokers and making listed shares widely accessible to customers at low cost, generating enormous volumes (Westland & Clark 1999). In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled "The conflict of interests... a lesson from Moscow", at Aleqtisadiah Newspaper (Issue No. 4526, Date: 03/03/2006). The article summarised major operational challenges faced the Moscow Stock Exchange (MSE) during the mid-1990s when it kept trading and settlement inaccessible to the average investor. The article made use of Westland and Clark (1999) case study on MSE. See Appendix IV.

During the period of 1984-87, trading and registration of shares were beset with procedural delays in a segmented market with imperfect information on prices and lots. The traditional share brokers continued to operate under the cover of Regulation 19(B) of trading rules. This permitted share registration offices of companies to complete transfer procedures without the transaction going through banks, provided that the transaction was direct between the buyer and the seller, without intermediary and without payment to third parties. This option was used by bigger value block transactions and reduced the role of banks.

Moreover, the bureaucratic procedures of share registration took several weeks rendering shareholders unable to dispose of their shares. To overcome trading and registration delays, two options were pursued:

1. The 11 existing banks established in 1985 and the Saudi Share Registration Company (SSRC), a private limited liability company, to facilitate central registration for joint stock companies and settled and cleared all share transactions.
2. This was followed by the launch of an automated system for share settlement processed by SSRC in 1987, a remarkable year as it symbolises the birth of the first form of automation in the share market. For the purpose of this thesis, this system is named SSRC-IT.

In 1990, SAMA, as the day-to-day regulator of the share market, introduced ESIS, an electronic share trading and settlement system. ESIS aimed to centralise the fragmented market, narrow price spreads, and improve market liquidity.

ESIS had evolved during the 1990s in accordance with the continuing evolution of the share market. Al-Suhaibani and Kryzanowski (2000), and Bekaert and Hearvey (2002) list some major economic developments to the share market, commencing in the early 1990s:

1. 1990: The introduction of the Insider Trading Law.
2. 1997: SAMA authorised the establishment of a special fund, the country fund, to facilitate indirect portfolio investments in Saudi Arabian Riyal securities, primarily the shares of Saudi Arabian joint stock companies.
3. 1998: A stand-alone index of the International Finance Corporation Global (IFCG) was launched for the Saudi share market.

4. 1998: The Emerging Markets Data Base (EMDB)⁶² re-balanced the International Finance Corporation (IFC) indexes and the Saudi share market joined IFCG index for Europe, Middle East and Africa (EMEA).
5. 1999: The Ministry of Finance announced the ground breaking decision to allow non-Saudi investors to own shares in the share market through mutual funds.

The share market has witnessed continued evolution and SAMA decided in the late 1990s to enhance its technological structure. In 2001, a technological advancement occurred when SAMA introduced Tadawul, a new trading, clearing, and settlement system, to replace ESIS. Tadawul, as we shall see, is considered a catalyser of technological and organisational change in the share market as it implied changes, not only in technical aspects, but also in other aspects, such as structure, rules, features and management (Tadawul MD).

SAMA was the day-to-day regulator of the share market and the developer and operator of Tadawul until June 2003 when the government issued CML that established the Capital Market Authority (CMA). The general implication of establishing the CMA on the share market was that the regulatory role shifted from SAMA to CMA and the operational role was privatised.

Currently, Tadawul is on the way towards privatisation to become a private IT company dedicated to perform the functions of the Securities Depository Centre and the Stock Exchange. These are new organisations established by CML. It employs about 100 employees, mostly technical staff acquired from SAMA, and contracts with CMA to perform the functions of the Securities Depository Centre and the Stock Exchange. The contract is temporary until the official launch of both the Securities Depository Centre and the Stock Exchange.

10.3 Some key events

In order to understand the evolution of the Tadawul constituency, it is necessary to look at some of the key events that started 25 years ago and have influenced the shape of the present constituency. The review focuses on the technological developments that have directly influenced the emergence and subsequent evolution of the Saudi share market toward a modern stock exchange environment. Such

⁶² Emerging Markets Data Base (EMDB) was launched by the International Finance Corporation (IFC) in 1981 to collect data on emerging markets for in-house use. Over time, demand from the financial community for this data increased. In 1987, IFC began offering its indices and underlying data as commercial product. Using a sample of shares in each market, the indices proved to be valuable performance benchmarks. The indices have helped investors overcome the difficulties of comparing locally-produced indices with differing methodologies. EMDB was acquired by Standard & Poor's in January 2000 (RAIMEX 2005).

developments are the automation origins and the technological developments of the 1990s, first part of 2000s, and mid-2006.

10.3.1 Automation origins

The origins of share trading automation go back to the mid-1980s when SSRC launched in 1987 SSRC-IT. The launch of SSRC-IT occurred together with the opening of the first central share trading hall at SSRC premises in Riyadh. The opening of the hall was faced with criticisms as trading would conflict with Islamic trading principles. Accordingly, the hall has been closed after only three days of operation while SSRC-IT continues serving the market (Tadawul R&D Manager).

The motivation for such development was to overcome share trading and registration delays that took a period of two to three weeks. After the launch of SSRC-IT, the entire process of settlement and change of ownership for share trades executed with banks took only two days and the buyer of shares was given an Ishaar, a certificate evidencing the ownership of shares (Banafe 1993). Table 10.3.I shows the evolution of share trading transactions pre- and post-SSRC-IT implementation.

End of period	No. of shares traded (m)	Value of shares traded (SAR b)	Market value of shares (SAR b)	No. of transactions (k)	All Share Index (TASI)
1985	4	1	67	8	690.88
1986	5	1	63	11	646.03
1987	12	2	73	23	780.64
1988	15	2	86	42	892.00
1989	15	3	107	110	1,086.83
1990	17	4	97	85	979.8

Table 10.3.I Share trading transactions handled by SSRC-IT, 1985-90 (SAMA 2006)

Although the SSRC-IT increased the efficiency of the process of share trading and registration, the seal of the central share trading hall in 1987, the continuing floating of new companies and the fragmented characteristic of the share market required a new means of automation. This drove SAMA to contract with Accenture⁶³ to participate in developing new means of share trading. In 1990, SAMA introduced a major enhancement of the share market by unveiling ESIS (Tadawul R&D Manager).

ESIS aimed to centralise the fragmented market, narrow price spreads and improves market liquidity. It linked the centralised trading unit (CTU) at each bank as well as the computer system of SSRC with the central computer at SAMA. Figure 10.3.I provides a schematic representation for share transactions among all participant entities in the Saudi share market.

⁶³ Accenture, formally Andersen Consulting, is a global management consulting, technology services and outsourcing company.

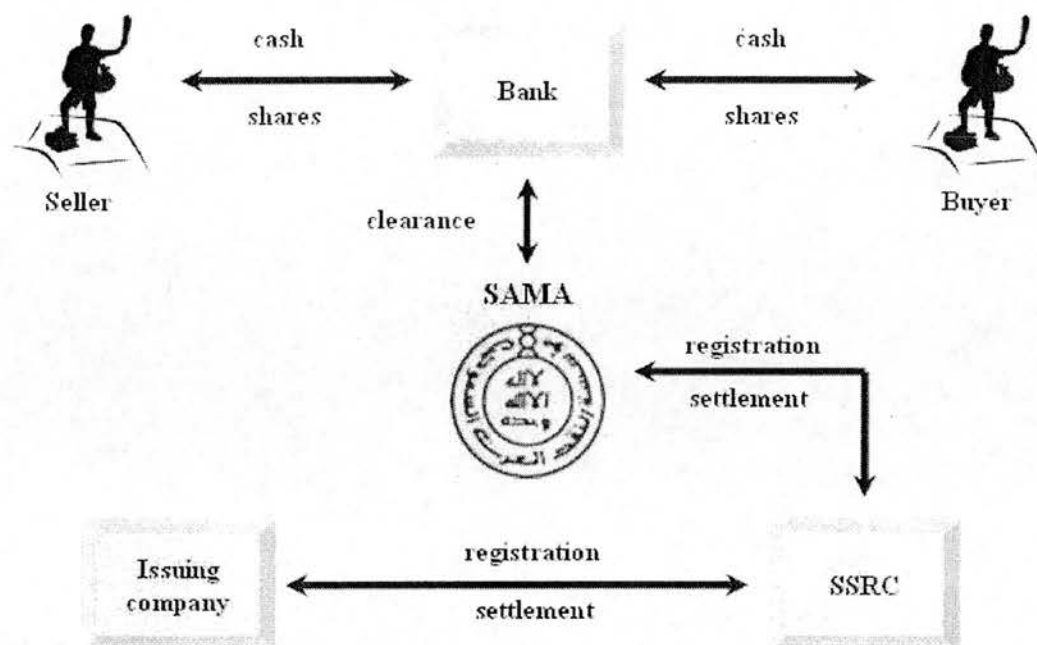


Figure 10.3.I Schematic representation of share transactions among all participated entities in the Saudi share market as of 1990s (Banafe 1993: 181, modified; Tadawul R&D Manager)

ESIS provided better fairness and transparency of trading in terms of share prices and positions which helped to speed up the execution of share trades and their settlements⁶⁴. ESIS also provided an efficient means by which customers' orders were executed and settled. ESIS attempted to match the placed bid and offer orders with the best available bids and offers according to price/time priority. Unmatched bids and offers were kept in the electronic market until either matched by ESIS or taken out from the market by traders.

ESIS encouraged banks to open their vast branch network to investors who wished to trade in shares. It also permitted two to three days settlement feature, next day clearance (NetBase) feature and a paperless system where share certificates became obsolete. Over the next decade, the number of shares traded and values traded grew in a geometric progression. Many new companies were floated and existing companies tapped the share market (SAMA 2003). Table 10.3.II provides statistical data on the evolution of transactions handled by ESIS.

End of	No. of	Value of	Market	No. of	All Share
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⁶⁴ Fairness and transparency of trading are central to implementing IT in stock exchanges (Westland & Clark 1999). In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled "Brokers and market... to avoid Santiago's challenge", at Aleqtisadiah Newspaper (Issue No. 4511, Date: 16/02/2006). The article summarised the ICT's fairness and transparency challenges faced the Santiago Stock Exchange (Bolsa de Comercio de Santiago) during the mid-1990s. The article made use of Westland and Clark (1999) case study on the Bolsa de Comercio de Santiago. See Appendix IV.

period	shares traded (m)	shares traded (SAR b)	value of shares (SAR b)	transaction s (k)	Index (TASI)
1991	31	9	181	91	1,765.24
1992	35	14	206	272	1,888.65
1993	60	17	198	320	1,793.30
1994	152	25	145	357	1,282.90
1995	117	23	153	292	1,367.60
1996	138	25	172	284	1,531.00
1997	312	62	223	460	1,957.80
1998	293	52	160	377	1,413.10
1999	528	57	229	438	2,028.53
2000	555	65	255	498	2,258.29

Table 10.3.II Share trading transactions handled by ESIS, 1991-2000 (SAMA 2006)

10.3.2 Development and restructuring

ESIS satisfied the business needs of the share market during the 1990s. The business needs of the 2000s, however, would become more demanding and SAMA decided at the end of the 1990s to replace ESIS with a more advanced system, Tadawul, an Arabic word meaning in trading. Tadawul Managing Director (Tadawul MD) highlights the reason for replacing ESIS with Tadawul:

“At the late 1990s, there was a plan to launch new ideas to the [share] market. Such new ideas were not possible with the existing features of ESIS. Therefore, we had to choose either to continue enhancing ESIS or to develop entirely a new system to furnish the new ideas. We have chosen to develop a new system, Tadawul.”

One of the important implications of Tadawul on the share market is the dissemination of market information beyond banks' branches⁶⁵. Share traders and investors no longer need to search for listed companies' financial data nor do they need to visit banks' branches to learn the most recent share prices as such information is published on either Tadawul website or Tadawul Magazine, a free quarterly magazine published in 2002 and focusing solely on the local share market.

The launch of Tadawul implied changes in organisational structure. All SAMA's departments and sections related directly to the share market, such as the Shares Control Department and the Tadawul Team, have been split from their parental divisions and departments and grouped under one entity,

⁶⁵ The Shanghai Stock Exchange (SSE) represents an interesting example on the efficient use of IT in stock exchanges. In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “Average investors first”, at Aleqtisadiah Newspaper (Issue No. 4688, Date: 15/04/2006). The article summarised the ICT's build-up process followed by SSE to extend trading hours, bypass brokers and make listed shares widely accessible to customers at low cost, generating enormous volumes. The article made use of Westland and Clark (1999) case study on SSE. The article is available online at <http://aleqtisadiah.com/article.php?do=show&id=1707>. An electronic copy from the article is attached as a part of Appendix IV with permission from the publisher, Saudi Research & Marketing Group.

Tadawul Department. The SSRC has been closed and the role of settling and registering of shares has been taken over by the Tadawul Department. Figure IV portrays SAMA's organisational structure.

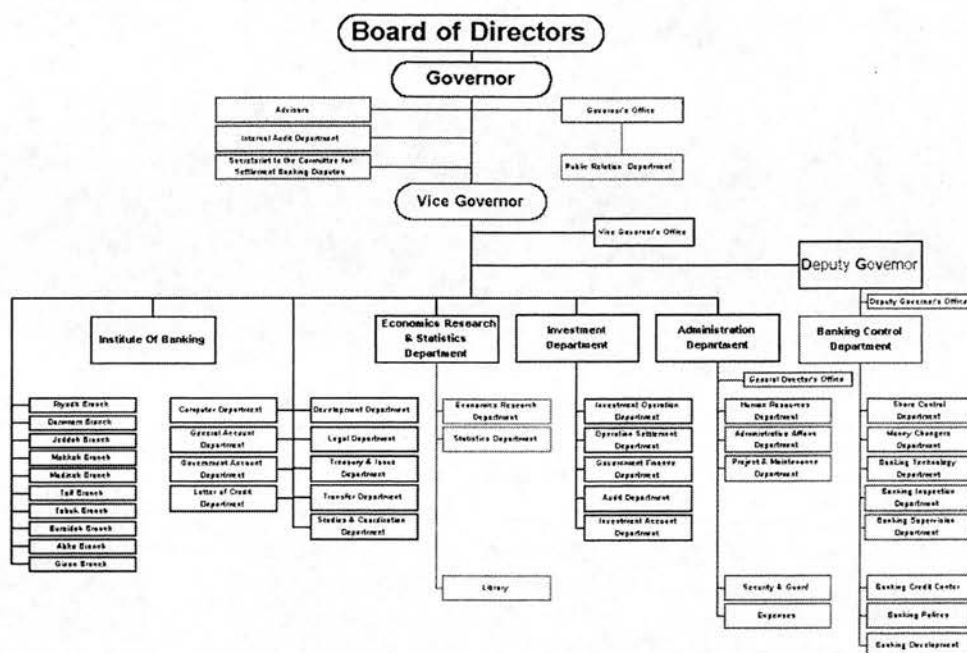


Figure 10.3.II SAMA's organisational structure as of 1999 (SAMA 2003)

The Tadawul Department reports directly to SAMA's Deputy Governor and has been reallocated to an external premises outside SAMA Head-Office. A SAMA technical employee who participated in the development of SPAN and ESIS systems during the early 1990s and led the development team of SARIE during the mid-1990s has been appointed as the Managing Director of the department. Table 10.3.III provides statistical data on transactions handled by Tadawul during the period 2001-2003.

End of period	No. of shares traded (m)	Value of shares traded (SAR b)	Market value of shares (SAR b)	No. of transactions (k)	All Share Index (TASI)
2001	691	84	275	605	2,430.11
2002	1,736	134	281	1,034	2,518.08
2003	5,566	597	590	3,763	4,437.58
2004	10,298	1,774	1,149	13,320	8,206.23
2005	12,281	4,139	2,423	46,608	16,712.64

Table 10.3.III Share trading transactions handled by Tadawul, 2001-03 (Tadawul 2006)

10.3.3 The Capital Market Law

SAMA had been the regulator of the share market and the developer and operator of Tadawul until June 2003 when the government issued CML that established CMA. The following are the main aspects of CML (CML 2003):

1. "An Authority to be named "The Capital Market Authority" is hereby established in the Kingdom and shall directly report to the President of the Council of Ministers. It shall have a legal personality and financial and administrative autonomy. It shall be vested with all authorities as may be necessary to discharge its responsibilities and functions under this Law. The Authority shall enjoy exemptions and facilities enjoyed by public organisations. Its personnel shall be subject to the Labour Law," (Article Four: A).
2. "A market shall be established in the Kingdom for the trading in Securities which shall be known as the "Saudi Stock Exchange", and will have the legal status of a joint stock company in accordance with the provisions of this Law. This Exchange shall be the sole entity authorised to carry out trading in Securities in the Kingdom," (Article Twenty: A).
3. "The Authority shall establish a committee known as the "Committee for the Resolution of Securities Disputes" which shall have jurisdiction over the disputes falling under the provisions of this Law, its Implementing Regulations, and the regulations, rules and instructions issued by the Authority and the Exchange, with respect to the public and private actions," (Article Twenty Five: A).
4. "An Appeal Panel is to be formed by a Council of Ministers' decision... The Appeal Panel shall have the discretion to refuse, to review the decisions of the Committee for the Resolution of Securities Disputes, to affirm such decisions, to undertake a de novo review of the complaint or suit based on the record developed at the hearing before the Committee and to issue such decision as it deems appropriate in relation to the complaint or the suit. The decisions of the Appeal Panel shall be final," (Article Twenty Five: G).
5. "The [BODs] of the Exchange shall establish a department to be known as the "Securities Depository Centre" which shall be the sole entity in the Kingdom authorised to practice the operations of deposit, transfer, settlement, clearing and registering ownership of Saudi Securities traded on the Exchange," (Article Twenty Six: A).
6. "Brokerage business is restricted to a person holding a valid license and who is an agent of a joint stock company that is licensed to perform brokerage activities," (Article Thirty One: A).

Figure 10.3.III shows SAMA's organisation structure after the establishment of CMA and Table 10.3.IV compares among the main aspects of the share market pre- and post-CML.

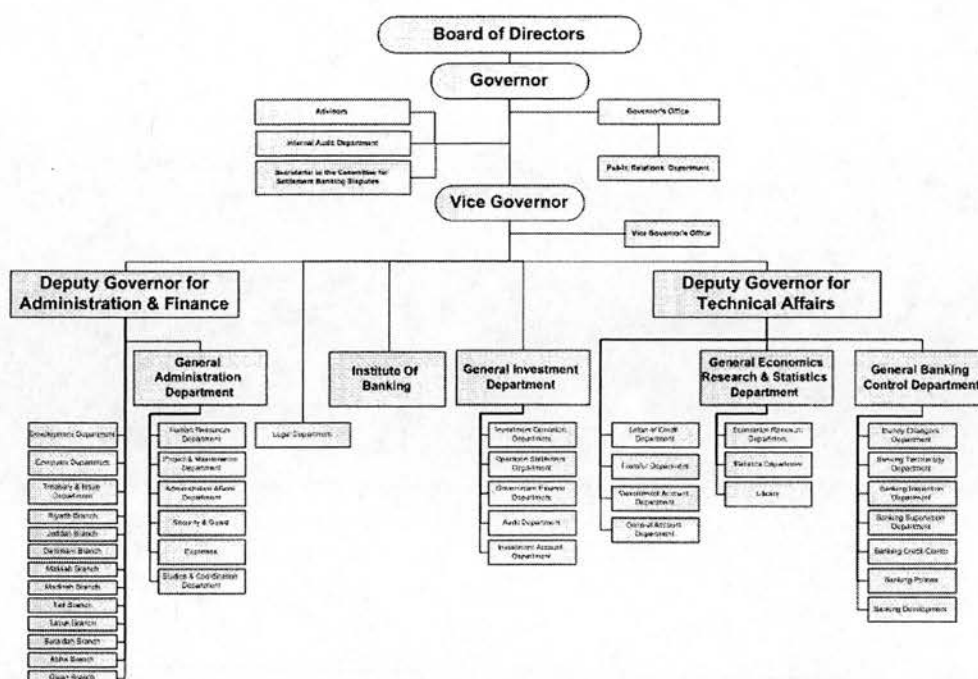


Figure 10.3.III SAMA's organisational structure after the establishment of CMA (SAMA 2006)

Aspect	Pre-CML	Post-CML
Governance	SAMA	CMA
Trading entity	Share Market	Stock Exchange
The role of executing of securities trading transactions	A fragmented task between SAMA and SSRC	Securities Depository Centre
The role of settlement of securities disputes	SAMA via Banking Dispute Committee	CMA via: Committee for the Resolution of Securities Disputes Appeal Panel
Performer of trading intermediation	Commercial banks	Securities brokers and commercial banks
Definition of Tadawul	A securities trading, clearing and settlements system	An operator to the functions of: The Stock Exchange The Securities Depository Centre
Owner of Tadawul	SAMA	An IT private company
The role of supervising pre-floating companies	Ministry of Commerce	Ministry of Commerce and Industry
The role of supervising floating companies	Ministry of Commerce	CMA
The role of supervising post-floating companies	Ministry of Commerce	CMA

Table 10.3.IV Main aspects of the Saudi share market pre- and post- CML (Tadawul R&D Manager; General Counsel)

10.3.4 OMX Contract

CMA announced in November 2005 a plan that will imply a big improvement in the technological capabilities of the Saudi Share Market. CMA announced the expansion of the "share" market toward

an integrated “capital” market that involves many securities markets, such as a parallel share market for new and small companies. The expansion will not only be horizontal (e.g., secondary market⁶⁶), but will also be vertical to include additional securities, such as Islamic bonds (Sukuk)⁶⁷, real estate mutual funds⁶⁸ and REPOs⁶⁹.

In order to meet such expansion, CMA signed at the end of May 2006 a major contract with OMX, the owner and operator of the largest integrated securities marketplace in Northern Europe and the provider of technology solutions for financial and energy markets worldwide. The contract aims to streamline the operations of CMA and to upgrade the existing technological infrastructures of the share market to meet the expansion toward an integrated capital market.

As per the terms of the SAR 160 m contract, OMX will be the primary system integrator for the design, implementation, and infrastructure of the Saudi Capital Market. CMA’s Chairman highlights the scope of such major evolution as well as its strategic implications of the evolution of Tadawul:

“This agreement was part of the strategy to upgrade the technical infrastructure of our capital markets to meet the growing market expectations utilising best available technologies... Tadawul is committed to providing the highest levels of services to its customers, members, investors and data vendors,” (Khan 2006).

Under the contract, OMX will also provide its platforms for trading and market data dissemination, a smart’s market surveillance system and will also integrate a central securities depository solution from Tata Consultancy Services Limited (TCS), a global IT consulting, services, and business process

⁶⁶ In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “A primary and secondary market ... differences in mechanism, trading and investment”, at Aleqtisadiah Newspaper (Date: 25/11/2005). The article compared and contrasted the technological system of the New York Stock Exchange (NYSE), as a primary market, with that of Nasdaq, as a secondary market. See Appendix IV.

⁶⁷ Sukuk is the Arabic name for financial certificates. The international Islamic bond market is divided into sovereign, quasi-sovereign, and Sukuk. These asset-based bonds of medium-term maturity have been issued internationally by sovereign and corporate entities (e.g., central banks). In 2001, the Bahrain Monetary Agency (BMA) was the first governmental entity in the GCC countries to issue Sukuk (El Qorchi 2005). In 2006, the Saudi Arabian Basic Industrial Company (SABIC) became the first corporate entity public Sukuk issuance in the Saudi Capital Market when it signed at the end of July the underwriting agreement for its debut Sukuk issuance for a total amount of SAR 3,000 m (SABIC 2006).

⁶⁸ The CMA Board of Commissioners approved in July 2006 the Investment Fund Regulations to organise the market of real estate investment funds. Such regulations will allow CMA to supervise the real estate sector. In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “Real estate on the path of stocks”, at Aleqtisadiah Newspaper (Issue No. 4624, Date: 09/06/2006). The article summarised the way SAMA regulated the share market during the mid-1980s. It also predicted that the real estate sector will be organised by CMA through the same mechanism used by SAMA to regulate the share market during the mid-1980s. See Appendix IV.

⁶⁹ REPOs are contracts in which the seller of securities agrees to buy them back at a specified time and price. It also called re-purchase agreements or buy-back (Westland & Clark 1999).

outsourcing company. It is expected that the development of such technological systems will take 11 months commencing June 2006. Accordingly, Tadawul is looking to be replaced by OMX during the first quarter of 2007.

The automation of the Saudi Share Market started in 1987 and the technological developments of the 1990s, first part of 2000s, and mid-2006 are key events influencing the shape of the present Tadawul constituency. The above discussion briefly looked at such events and highlighted the technological evolution associated with each event. The next section looks at the processes leading to the rise of the Tadawul constituency. How has it been built?

10.4 The development of the Tadawul constituency

The emergence of the Tadawul constituency finds its historical origins in the ESIS constituency that developed during the 1990s. Therefore, it is necessary to look at the build-up of the ESIS constituency⁷⁰. Table 10.4.I provides a brief assessment of the state of the ESIS constituency as of late-1990s through the conceptual lens of the “diamond of alignment” (Molina 1995). This is followed by a brief discussion of the state of the process of sociotechnical alignment at ESIS.

⁷⁰ In order to advance and disseminate the knowledge and understanding among the public in Saudi Arabia, I published an article, entitled “The next market mechanise”, at Aleqtisadiah Newspaper (Issue No. 4638, Date: 23/06/2006). The article reviewed the ESIS’s build-up process and summarised the influences ESIS had on the ICT’s infrastructure of the share market during the first part of the 1990s. See Appendix IV.

(I-II) Constituents' perceptions, goals, actions and resources

ESIS had been developed and operated by the Banking Technology Department (BTC) of SAMA through a technical team named ESIS's team. The team consisted of about 40 technical staff possessing a mix of expertise in software engineering, networking, and systems analysis. In order to cover the development and operation costs, SAMA charged banks and the Saudi Share Registration Company (SSRC) a small fee on any clearance and settlement transaction (see Figure 10.3.I). ESIS's team consisted of three groups. The first group was Accenture's staff to provide technical consultancy. The second group consisted of some technical experts acquired from other SAMA's technical departments, such as the Computer Department, to manage the development process. The third group consisted of fresh technical graduates recruited from universities to perform the actual development. The team was in direct contact with SSRC and CTU at each bank during the development process. Members of the team frequently received technical training courses mainly from Accenture. Members of both CTU at each bank and SSRC participated in some courses.

(II-III) Nature and Maturity of the Technology

ESIS was a network system linking with the centralised trading unit (CTU) at each bank. Each CTU was linked with all share trading centres at some banks' branches. By 1999, ESIS had connected 500 branches (i.e. 49% of working branches) in addition to the computer system of SSRC. It had been heavily developed on C++ programming language and devoted to perform the features of two to three days settlement and next day clearance (NetBase).

Alignment (1-Ii) – Organisational governance

ESIS's team was one of BTC's team directly linked to the Banking Control Department of SAMA (see Figure 10.3.II). Because SAMA, via BTC, sponsored during the 1990s the development of major IT projects, including ESIS, BTC received direct support and authority from SAMA's Deputy Governor to furnish the banking sector with its technical needs (Tadawul survey 2003). Such support and authority positively influenced the development of ESIS as BTC had the power to directly contact banks and SSRC with regard to technical and administrative issues related to the development of ESIS.

Alignment (2-2i) - Target constituents' perceptions and pursuits

ESIS had enrolled many entities behind its constituency. Intra-organisationally, ESIS's team evolved during the first part of the 1990s to form its three groups: an external IT developer, technical experts, and fresh technical graduates. Inter-organisationally, ESIS had directly targeted CTU at each bank and indirectly, bank branches, which by 1999 reached 49% of working branches connected with ESIS. However, the most important entities that ESIS could not target was investors and traders as ESIS has no direct contact with such entities. This challenge prevented ESIS from transforming trading culture beyond bank branches.

Alignment (3-3i) - Nature of target problem

SAMA unveiled ESIS in 1990 with the aim of centralising the fragmented market, narrowing price spreads and improving market liquidity. It linked the centralised CTU at each bank as well as the computer system of SSRC with the central computer at SAMA (see Alignment 4-4i & Figure 10.3.I). The main envisaged benefits of ESIS were the features of two to three days settlement, next day clearance (NetBase) and a paperless system where share certificates became obsolete. The capabilities of ESIS were well aligned with the nature of the target problem and the constituency was able to deliver on the requirements for most of the 1990s. By the end of the 1990s, however, it had become clear that the target problem was becoming more demanding and the ESIS system would not be able to satisfy the demands of the 2000s. In other words, "there was a plan to launch new ideas to the [share] market. Such new ideas were not possible with the existing features of ESIS," (Tadawul MD).

Alignment (4-4i) - Interacting technologies/constituencies

ESIS had a complementary relation with the Saudi banking sector's traditional systems, such as SPAN. Technically, however, SAMA kept ESIS isolated from other systems. The main reason was to smooth out the process of data synchronisation since such data were not directly related to that of other systems. Another reason was the nature of the programming language used by the ESIS constituency. Indeed, ESIS, the SSRC computer application and CTU at each bank were C++ applications dedicated to perform the features of two to three days settlement and next day clearance (NetBase). Such a feature helped achieve a swifter execution of trades and their settlements and provided an efficient means by which customers' orders were executed and settled (see Alignments 2-2i & 3-3i).

Table 10.4.I The state of alignment of ESIS constituency as of the end of 1990s

Since its origins, the ESIS constituency developed gradually in a close interplay between intra- and inter-organisational relations. Not only had a great deal of ICTs expertise extended outside. Also the need for alignment between the new means of automation and the corporate strategy of the share

market influenced and shaped the characteristics and evolution of the ESIS constituency. As ESIS became mis-aligned with the nature of the target problem by the end of the 1990s, the constituency lost momentum and opened the way to the rise of the new Tadawul constituency. The following discussion deals with the development of Tadawul which dates from the late 1990s until today.

10.4.1 (I-II) Constituents' perceptions, goals, actions and resources

According to the Tadawul R&D Manager, security infrastructure, and business continuity and contingency for both Tadawul and banks are drivers behind the development of Tadawul. Tadawul's executives are proud of Tadawul's strategic and economic roles in the Saudi share market:

"For the first time in the history of the [share] market, all technical, supervision and administrative affairs related to the [share] market are centralised at a single entity, which is Tadawul," (Tadawul MD).

The issue of the CML and the establishment of CMA in 2003 implied a major organisational change for Tadawul. It was separated from SAMA and became a private IT company contracting only with CMA to perform the functions of the Stock Exchange and the Securities Depository Centre. Part of the function of the Securities Depository Centre had, in the past, been performed through SSRC. The contract is however temporary until the official launch of both the Securities Depository Centre and the Stock Exchange.

The business and constituency-building aspects of Tadawul are going well inside both the former and existing governances, SAMA and CMA, respectively. Tadawul has been fully accepted and supported. Although it did not implement any promotional activities inside SAMA or CMA, Tadawul has built a good reputation among different inter-bank technological systems, such as SARIE. It has also received the necessary resources in terms of people (e.g., Tadawul's team), expertise, funding, and facilities. Tadawul's main departments are Market Control, Companies Information, Systems Development, and Market Information and Marketing Department. It employs about 100 employees who were mostly acquired from SAMA and has been allocated an average annual budget of SAR 35 m and external premises out with SAMA's Head-Office. In addition, Tadawul charges for the provision of the settlement and clearance service of shares. Tadawul MD explains Tadawul's main revenue model:

"All transactions related to trading [shares] at the Saudi Stock Exchange are processed by Tadawul... Banks charge their clients a percentage from the total value of a [share] trade. We at Tadawul charge banks 10% of that percentage.

SAMA specifies a maximum percentage that banks can charge their clients for performing a [share] trade⁷¹.”

Tadawul's personnel, particularly technical staff and executive management are motivated to be part of the constituency. This is because their interests and activities, such as career progression, receive careful attention. The decision of the Council of Ministers in June 2005 is a revealing example of the strong alignment existing between Tadawul and its constituent personnel. The Council decided to equalise the financial promotions (e.g., salaries and bonuses) of employees in governmental agencies (e.g., General Investment Authority, SAGIA) with that of ministries (e.g., Ministry of Finance)⁷². Employees of CMA and its related entities, such as Tadawul, have been exempted from this decision due to the fact that they are not allowed by the Insider Trading Law, introduced in 1990, to trade shares. This example also highlights that Tadawul offers high wages and bonuses to its employees as a strategy to motivate them behind the development of the constituency.

Tadawul is also characterised by a tradition and a culture of innovativeness. It is a major user of ICT applications and technologies, including specially developed applications, ready made applications, office automation, client/server, networking, DBMS, and web applications. The motivation for such innovative behaviour is the “creation of revenue streams and improvement of services offered” (Tadawul survey 2003).

Regarding investors in the share market, Tadawul furnishes them with two main services: equity trading and settlement, and dissemination of market information (Tadawul survey 2003). Tadawul's website, for example, presents different types of financially-related information about listed companies, including announcements that have impact on the share price (e.g. proposed projects), financial statements, and background information. Figure 10.4.I presents a screen-shot of Tadawul website.

⁷¹ The trade fee is based on the value of shares traded, with a minimum fee of 0.12% or SAR 12, whichever is higher. Since the inception of the Saudi Share Market, such fee evolved many times. Before CML (i.e. before October 2003), the minimum fee was SAR 25. The scale of the fee was 0.50% for up to SAR 10,000, 0.25% for SAR 10,001-100,00, 0.15% for SAR 100,001-500,000 and 0.10% for amounts over SAR 500,000 (Banafe, 1993). After CML (i.e. October 2003-June 2006), the trade fee was adjusted to 0.15% or SAR 15, whichever is higher.

⁷² Employees of governmental agencies, such as the General Investment Authority (SAGIA) and the Supreme Commission for Tourism, receive much higher financial promotions than those of ministries, such as the Ministry of Finance and the Ministry of Higher Education. The main reason for such difference is that such agencies were established after the establishment of the ministries' career progression.



Figure 10.4.I Tadawul website

The main services of Tadawul are to provide the same day trading and settlement (t+0) feature. It is “real-time settlement of trades with gateways linking to the banks’ order management systems. Price and company information are disseminated to banks, information vendors and on the website,” (Tadawul survey 2003). Another feature of Tadawul is that it is “the only trading system in the world that include trade revocable feature” (Tadawul R&D Manager). The website traffic is one of the main performance specifications of Tadawul. During 2002, the website accounted for almost 80% of all internal Internet traffic in Saudi Arabia (Tadawul 2003).

In addition to customers, banks which are the existing share brokers, are another entity that deals with Tadawul. Tadawul classifies the degree of acceptance from the banks’ point of view as full satisfaction. The main reason for this was the involvement of banks at the initial stage of Tadawul constituency-building process, particularly during the development stages of analysis, testing, and piloting. This early involvement helped Tadawul to promote the banks’ alignment with the system. In addition, Tadawul has implemented effective promotional strategies and activities, such as presentations, training and one-to-one discussions with banks. Such promotional strategies and activities have encouraged banks to favourably perceive Tadawul.

One of the main promotional activities is the Tadawul Certificate. In 2000, Tadawul made an alliance with IOB to develop and provide a training program for all share brokers. The general aim of the program is to increase the ability and efficiency of share brokers. It mainly focuses on compliance with share market regulations. The program started in 2001 via two courses: the basic investment examination preparation course and Tadawul exam preparation course. Obtaining the certificate is a must for all banks’ employees involved in share trading. During the first two years of Tadawul life,

478 employees from banks were provided with training, passed the trader examination, and obtained the certificate (Tadawul 2003).

Tadawul's MD highlights the importance of the quality of services and competitiveness offered by Tadawul:

"Tadawul has no competition but still pushes to improve the services to encourage investing in the share market... Tadawul provides all banks with the same data fields of stock trading transactions as well as interface specifications. Now it is up to each bank to take the data from these fields and create new stock trading services, such as screens to present these data to their clients. For example, if you go to Bank A, it will be different from what you will see in Bank B although both of them have the same data that come from the same source, which is Tadawul.... The services provided by banks on top of Tadawul, such as Islamic financing products provided by some banks are based on Tadawul, infrastructure. This is because we provide them with the infrastructure that they can use and utilise. This is what I mean by creating a competitive environment for banks."

Tadawul's position within the share market is obviously supported by the fact that Tadawul is the sole securities trading, clearing, and settlements provider in Saudi Arabia. This position however is sustained by delivering value. For instance, Tadawul offers information on market activities, such as share prices and mutual funds performance analysis. Its online interface and navigation are user-friendly and intuitive for share brokers (Saudi banks), making it easy to use. One of the reasons for the user-friendly and intuitive character of the online system was precisely the early involvement of share brokers during the stages of analysis, testing and piloting of the system.

Tadawul has evolved since its initial launch in 2001 through continued enhancements aiming at boosting performance and introducing new functionalities to share brokers, traders, and investors. The main reasons for such evolution have been the customers' demand and trades volume expectations.

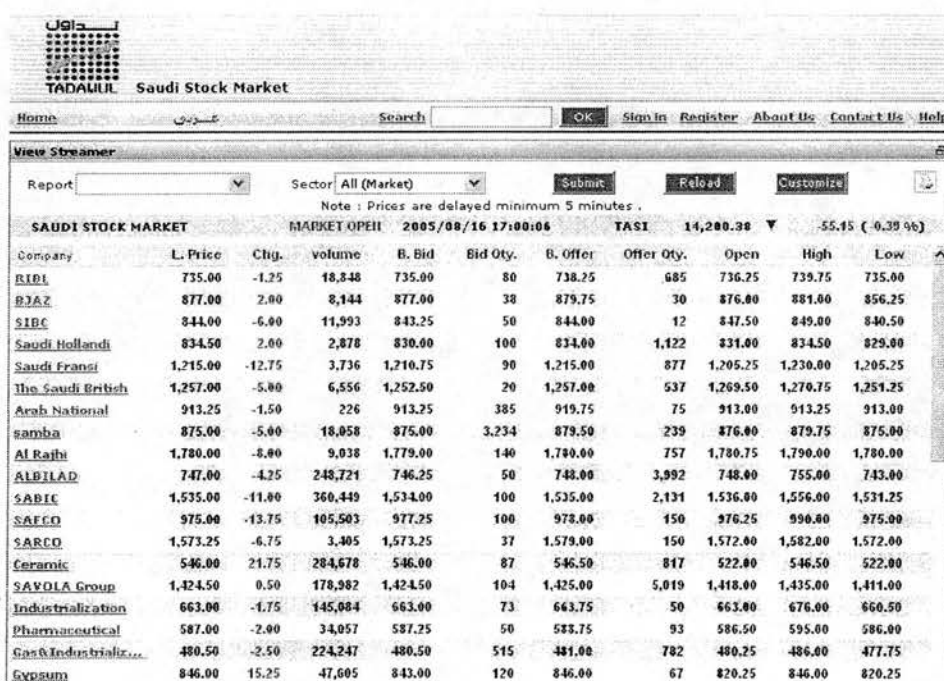
10.4.2 (II-III) Nature and Maturity of the Technology

Tadawul has an integrated technological system that centralises all technical, supervision, and administrative affairs relating to the share market. The initial technical specifications of the Tadawul constituency-building process were completed after eliminating most major technical problems. The present technical progress is mainly related to the significant increase in trading volumes and awareness of the share market match expectations. For example, in 2003, the Tadawul technological system achieved more than 26 transactions per second (see Alignment 4-4i). The system also has a tightly coupled trading, order matching, and settlement feature in order to achieve real-time settlement.

Such characteristics imply a major change for share brokers in relation to ESIS. According to Tadawul (2003), the settlement and clearance feature of Tadawul increases the efficiency of the Stock Exchange as:

1. The transmission process of shares' ownership from one investor to another requires no physical documents.
2. The duration of settlements has become short as settlements are performed on the same day.
3. The chances of error have been reduced to zero.
4. The provision of e-certificates for shares' ownership has replaced Ishaars, physical certificates that had been in place during the 1990s.

Compared to ESIS, the system enables the provision of completely new services, mainly related to dissemination of the share market to the public. For example, Tadawul contracted with Reuters at the end of 2003 to disseminate the share market to its customers' base. It also launched personal digital assistance (PDA), a bilingual service on mobile phones and introduced a new streaming quote technology, Tadawul Streaming Quotes, to present share prices more efficiently and to allow share traders and investors to track the Tadawul All-Share Index (TASI) (see Figure 10.4.II and Alignment 4-4i).



TADAWUL Saudi Stock Market

Home | Search | OK | Sign in | Register | About Us | Contact Us | Help

View Streamer

Report: [v] Sector: All (Market) [v] Submit [v] Reload [v] Customize [v]

Note: Prices are delayed minimum 5 minutes.

SAUDI STOCK MARKET MARKET OPEN: 2005/08/16 17:00:06 TASI: 14,200.38 ▼ -55.15 (-0.39 %)

Company	L. Price	Chg.	Volume	B. Bid	Bid Qty.	B. Offer	Offer Qty.	Open	High	Low
<u>RIBI</u>	735.00	-1.25	18,348	735.00	80	738.25	685	736.25	739.75	735.00
<u>RTAZ</u>	877.00	2.00	8,144	877.00	38	879.75	30	876.00	881.00	856.25
<u>SIBC</u>	844.00	-6.00	11,993	843.25	50	844.00	12	847.50	849.00	840.50
<u>Saudi Hollandi</u>	834.50	2.00	2,878	830.00	100	834.00	1,122	831.00	834.50	829.00
<u>Saudi Fransi</u>	1,215.00	-12.75	3,736	1,210.75	90	1,215.00	877	1,205.25	1,230.00	1,205.25
<u>The Saudi British</u>	1,257.00	-5.00	6,556	1,252.50	20	1,257.00	537	1,269.50	1,270.75	1,251.25
<u>Arab National</u>	913.25	-1.50	226	913.25	385	919.75	75	913.00	913.25	913.00
<u>samba</u>	875.00	-5.00	18,058	875.00	3,234	879.50	239	876.00	879.75	875.00
<u>Al Rajhi</u>	1,780.00	-8.00	9,038	1,779.00	140	1,780.00	757	1,780.75	1,790.00	1,780.00
<u>ALBILAD</u>	747.00	-4.25	248,721	746.25	50	748.00	3,992	748.00	755.00	743.00
<u>SABIC</u>	1,575.00	-11.00	360,449	1,574.00	100	1,575.00	2,131	1,576.00	1,586.00	1,571.25
<u>SAFIC</u>	975.00	-13.75	105,503	977.25	100	978.00	150	976.25	990.00	975.00
<u>SARCO</u>	1,573.25	-6.75	3,405	1,573.25	37	1,579.00	150	1,572.00	1,582.00	1,572.00
<u>Ceramic</u>	546.00	21.75	284,678	546.00	87	546.50	817	522.00	546.50	522.00
<u>SAVOLA Group</u>	1,424.50	0.50	178,982	1,424.50	104	1,425.00	5,019	1,418.00	1,435.00	1,411.00
<u>Industrialization</u>	663.00	-1.75	145,084	663.00	73	663.75	50	663.00	676.00	660.50
<u>Pharmaceutical</u>	587.00	-2.00	34,057	587.25	50	588.75	93	586.50	595.00	586.00
<u>Gas & Industrializ...</u>	480.50	-2.50	224,247	480.50	515	481.00	782	480.25	486.00	477.75
<u>Sycozum</u>	846.00	15.25	47,605	843.00	120	846.00	67	820.25	846.00	820.25

Figure 10.4.II A screen shot for Tadawul Streaming Quotes service (Tadawul 2005)

Moreover, Tadawul contracted with the National Technology Group, a Saudi communication company, to launch Mubasher service, a real-time share market information dissemination service. Mubasher allows share traders and investors to watch real-time price movements in the share market from the comfort of their homes or offices on their PC's or Laptops over the Internet. This service is the only one of its kind in Saudi Arabia. While Tadawul's Streaming Quotes service is offered for free and presents price movements with 20 minutes delay, the Mubasher service is a subscription-based service and offers real-time price movements (see Figure 10.4.III).

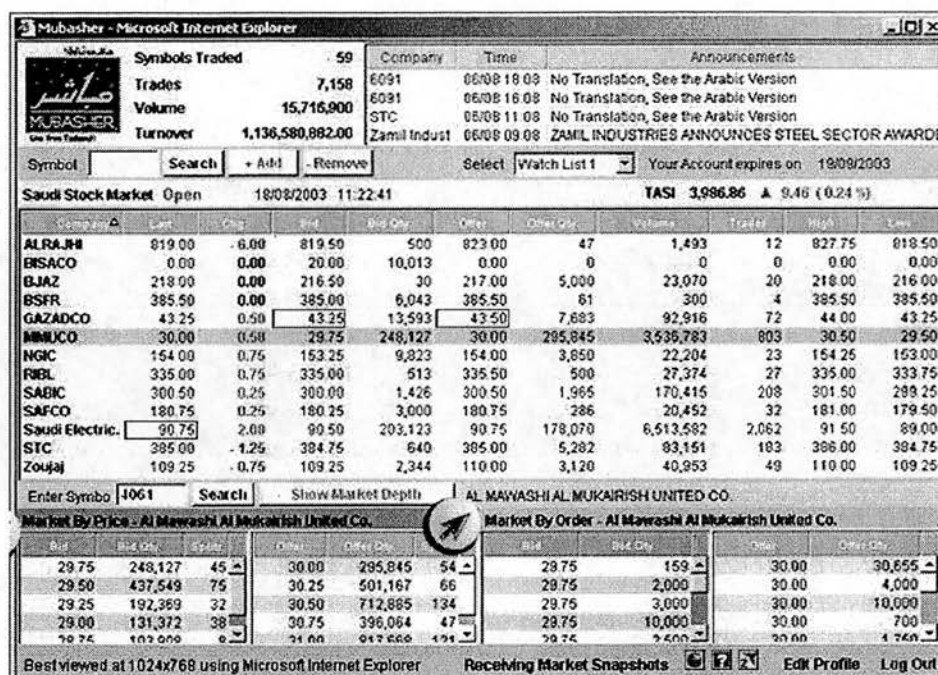


Figure 10.4.III A screen shot for Mubasher service (Mubasher 2005)

The build-up and running of Tadawul's technological system is not without risks. It is innovative and technically demanding, although Tadawul employs only stable and proven technologies. The risk of failing to deliver in terms of anticipated performance and cost may be significant in terms of loss of credibility and potential revenues. Indeed the Tadawul website experienced breakdowns particularly during the second quarter of 2005, raising the issue of whether Tadawul will be able to meet the expected sharp increase in share trading orders. Giving that the system's specifications did not evolve in the course of its development, this suggests the need for some technological enhancements in order to overcome the breakdown problems (see Alignments 2-2i & 4-4i). Table 10.4.II shows that Tadawul experienced a marked increase in the number of transactions during April and May 2005.

Month	No. of shares traded (m)	No. of transactions (k)
January	256	861
February	584	1,503
March	916	2,251
April	869	2,436
May	1,232	4,215
June	1,403	4,845
July	772	3,287
August	1,329	5,237
September	1,249	4,805
October	1,172	5,151
November	1,089	5,049
December	1,409	6,968
Total	12,281	46,608

Table 10.4.II Share trading transactions, January-July 2005 (Tadawul 2006)

Not only did Tadawul respond to the capacity challenge, but all banks as well. Tadawul's R&D Manager describes Tadawul's reaction toward the capacity challenge:

"Tadawul has been continuously upgrading its systems to cope with the increase in volumes and new listings. In 2005, Tadawul made major upgrades for its hardware, network, and application components. The hardware was completely replaced and all the banks with more powerful hardware to cope with the volumes. The upgrades in Tadawul were done for the trading and CSDR⁷³ systems. The network bandwidth capacity between Tadawul and SAMA Joint network was doubled in terms of leased lines and new communication technology, such as ATM and broadband, were installed but not activated yet. Several changes to the application have been done to optimise its performance but the most significant has been upgrading the trading engine to be multi-threaded and settlement to be done much more efficiently."

10.4.3 Alignment (1-1i) – Organisational governance

The implementation and achievements of Tadawul since 2001 have been positively influenced by many national and industrial directives and legislation. Before the provision of CML in October 2003 (see Figure 10.3.III & Table 10.3.IV), the Tadawul Department received strong power and authority from SAMA's governance. This was symbolised in the grouping of all SAMA's departments and sections related directly to the share market (e.g., Shares Control Department) into the Tadawul Department. Such organisational changes in the governance of SAMA were of prime importance in facilitating the initial success of Tadawul as it allowed Tadawul to establish a direct contact with share brokers (e.g., banks) with regard to any technical, administrative, and financial issue related to the development of Tadawul. "SAMA being a sponsor of major projects and using its influence with banks has made it much easier to implement large infrastructures," (Tadawul survey 2003).

Tadawul has also been positively influenced by some international and national legislative changes. Internationally, the Saudi share market joined the World Federation of Exchanges (WFE)⁷⁴, reflecting the share market's increased significance amongst its peers (Tadawul 2003). Nationally, SAMA issued the Anti-Money Laundering Law, requiring substantial re-engineering of existing activities and a virtual link between Tadawul and SARIE (see Alignment 4-4i).

The evolution of the national and industrial legislation, and directives has continued influencing the development of Tadawul even after the provision of the CML. Figure 10.4.IV portrays the

⁷³ CSDR is a technical term stands for clearing, settlement, depository and registration (Tadawul R&D Manager).

⁷⁴ The World Federation of Exchanges (WFE) is the trade organisation for regulated securities and derivative markets, settlement institutions and related clearing houses, and their diverse services to capital markets. WFE is a private international organisation comprised of the operators of the world's leading markets. It provides a forum for communication, analysis, and debate among members. Its purpose is to facilitate the representation, development of organised and regulated markets, and to meet the needs of evolving capital markets in the best interests of their users (WFE 2005).

organisational structure of CMA and the relationships among entities of the Saudi capital market. The establishment of CMA has meant not only the official transfer of the regulatory role of the day-to-day operation of the share market from SAMA to CMA, but also the initial steps towards an international stock exchange environment.

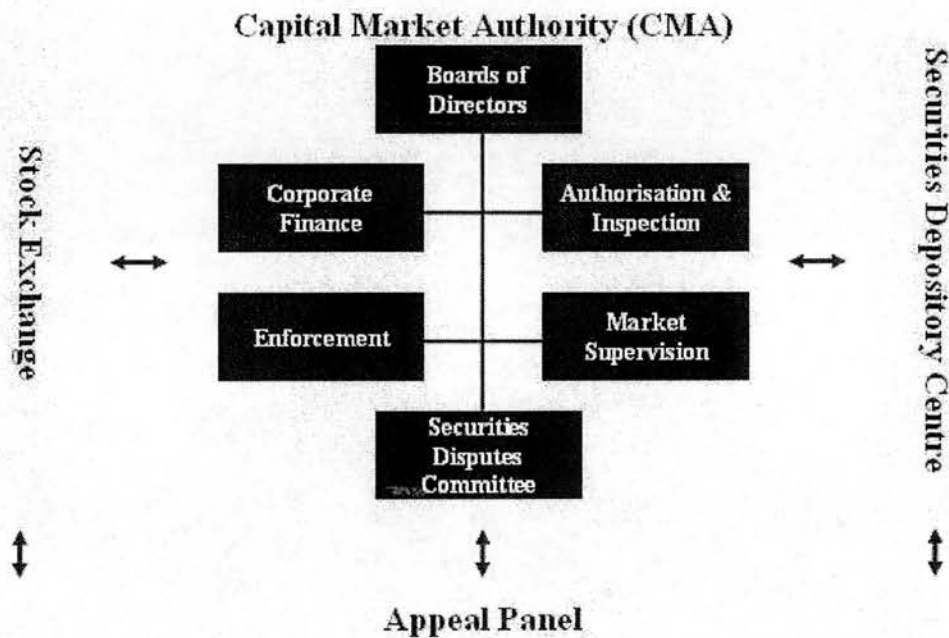


Figure 10.4.IV The organisational structure of the Saudi capital market

Now, Tadawul is on the way towards privatisation while performing the functions of the Securities Depository Centre and the Stock Exchange. The contracting of such functions is temporary until the official launch of both the Securities Depository Centre and the Stock Exchange. Figure X portrays the existing organisational relationships for securities transactions amongst all participating entities in the Saudi capital market. Clearly, the logic of the relationship is similar to that of the 1990s (see Figure 10.3.I). The changes are:

1. The possibility of trading all types of securities, including shares.
2. The organisations involved with the market. For example, the Stock Exchange is playing SAMA's role in trading, clearing, and settling transactions during the 1990s, while the Securities Depository Centre is playing SSRC's role in securities' registration.

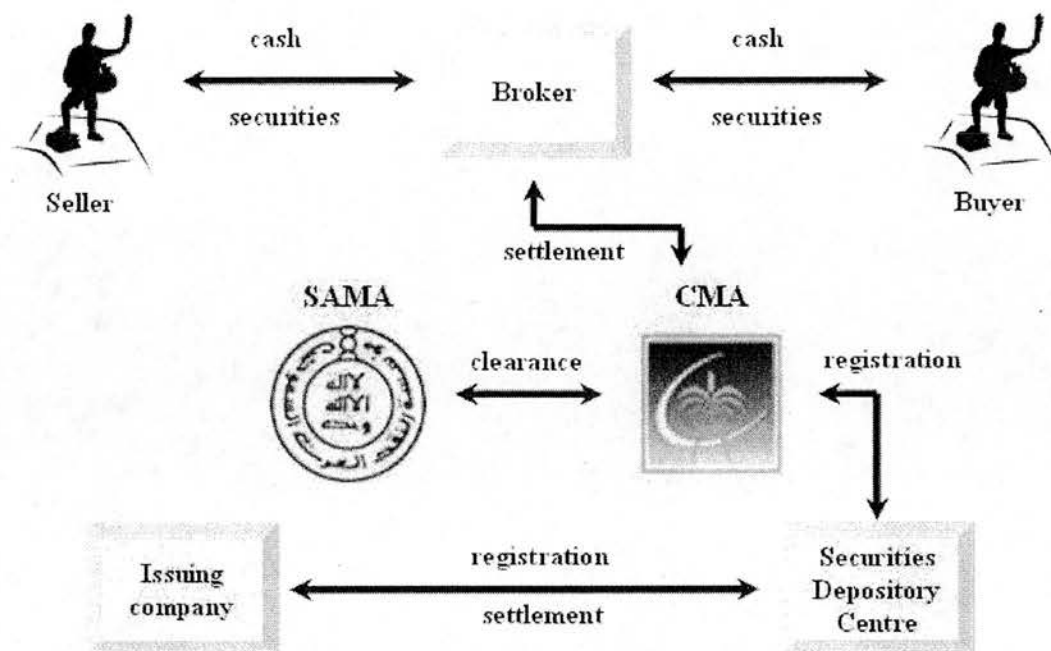


Figure 10.4.V Schematic representation of securities transactions among all participating entities in the Saudi capital market as of today

One issue concerning the growth and success of Tadawul is the privatisation of the Stock Exchange.

"We are undergoing privatisation. In the future Tadawul is not going to be a SAMA service. It is going to be the Stock Exchange. The challenge is then to convert the culture from a governmental sector to a private sector... [The investment regulatory structure is another issue as] there will be a change in the regulatory structure in Saudi Arabia for the investment business. Tadawul as any other one involved in this business is going to be impacted by such change" (Tadawul MD).

In addition to the privatisation of the Stock Exchange and the restructuring of investment regulations, CMA's governance has also influenced the development and achievements of Tadawul. For example, during the last quarter of 2004, CMA issued a group of internal rules, instructions and procedures aimed to framework the provisions of CML. Such regulatory standards are related to the administrative, financial and human resources affairs of CML and its related entities. They include:

1. Market conduct regulations.
2. Offers of securities regulations.
3. Listing rules.
4. Glossary of defined terms used in the regulations and rules of CMA.

The implications of such regulatory standards on the growth and success of Tadawul are explained by Tadawul's MD:

"Tadawul is growing. Tadawul has seen an incredible growth during 2003 and we expect the growth to continue in 2004. With the new rules and regulations of the

stock market you will see more IPOs and listed companies that will increase the growth of Tadawul.”

Although Tadawul plays an important role in the evaluation and emergence of the share market, it did not play the role of catalyser of change in the Saudi banking sector. Tadawul’s MD highlights the macro role of Tadawul:

“I think we started to look at banks from a different angle than before. We are a service provider and our clients are banks. So we have to listen to them to see what they want. I do not think we will drive banks. We are trying to lead in certain things through providing certain services comparable to other markets. But I do not think we will drive changes within banks.”

In summary, the governance of the Saudi capital market is very much in a state of continuing change with increasing demands on the capital market services of Tadawul. This is shaping the evolution of the technology and organisation of the Tadawul constituency.

10.4.4 Alignment (2-2i) - Target constituents’ perceptions and pursuits

A mixed progress characterises the Tadawul constituency-building process. While the achievement of some objectives is on course, the success with others is more mixed. Tadawul’s MD highlights how some objectives have changed:

“When you achieve something you probably establish a new target or objective. For example, the service of information dissemination has turned out to be a good source of income for us. So we capitalise the investment as a source of income for the Stock Exchange. Moreover, based on the concept of being the only provider of a gateway to banks, we keep enriching that data fields with additional services that the banks can use. Also based on the feedback that we get from banks, we have added new services to support the requirements of investors that came out during the period of development.”

The Tadawul constituency-building process has yet to succeed in aligning important target constituents. In particular, Tadawul considers customers as the most important entities it needs to bring increased numbers into the constituency. In this respect, Tadawul believes that their efforts are going well. Thus, the marketing of Tadawul is well resourced. Public relation campaigns have been designed and executed, including press articles and awareness material. Additionally, Tadawul published in 2002 a free publication named Tadawul Magazine, the first periodical in Saudi Arabia to focus solely on the local capital market. The magazine not only provides market information, news, and articles, but also specialises on the capital market and issuers of securities. The magazine also includes analysis of Arab and international stock markets (Tadawul 2003).

This was followed by the provision of the magazine through Internet in the first quarter of 2003. More information dissemination channels have been launched since then, such as Reuters, Mubasher and PDA services in 2003, 2004, and 2005, respectively. Tadawul executives argue that the reason for

customers not supporting Tadawul, so far, is that some of them are not aware of the distinctiveness of services provided by Tadawul.

Figure 10.4.VI compares the website traffic of Tadawul's website with that of the Kuwait Stock Exchange (KSE) via three criteria: page viewed, reach, and traffic rank trend. Although the number of transactions, investors and traders are much larger than that of KSE, Figure 10.4.VI does show that the awareness of Tadawul's investors and traders have sharply increased recently. Services offered by Tadawul's website, such as My Portfolio, a training tool for share traders and investors prospects (see Figure 10.4.VII), and Tadawul Magazine might be the reason for such a sharp increase as there are not enough dissemination channels for market information beyond banks' branches.

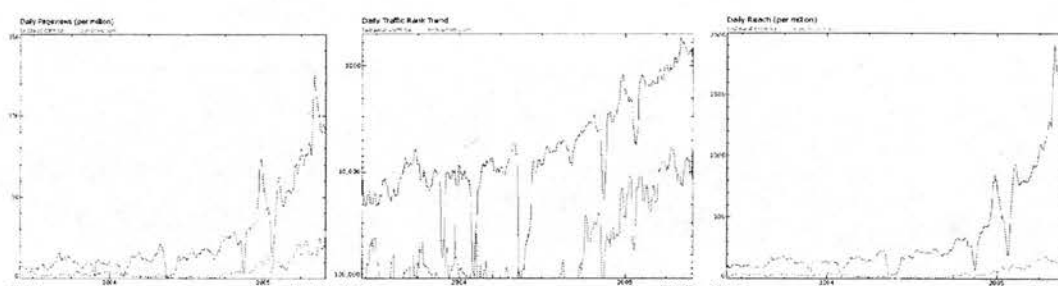


Figure 10.4.VI Website's traffic comparative charts between the stock exchanges of Saudi Arabia and Kuwait (Alexa 2005: 1 June 2005)

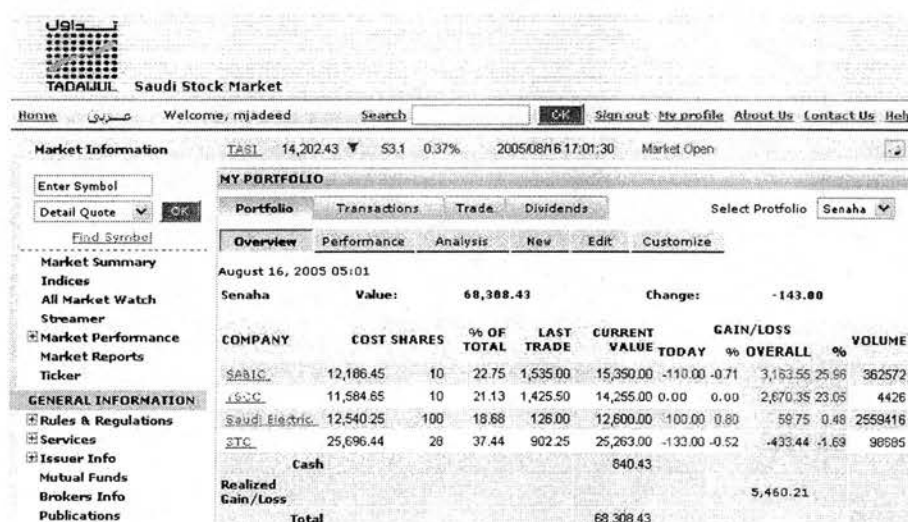


Figure 10.4.VII A screen shot for My Portfolio's trading tool at Tadawul website

The number of investors use Tadawul, indirectly via banks, exceeded two million by the end of 2004. The floating of new companies in the share market has influenced such number during 2005. By the end of January 2006, the number of investors linked to Tadawul has exceeded four million, an 81% increase from 2004. Moreover, while male investors accounted for 87% of the total number of

investors in the share market, female investors account for the remaining 13%. Figure 10.4.VIII shows the increased number of investors as well as investment accounts during 2005.

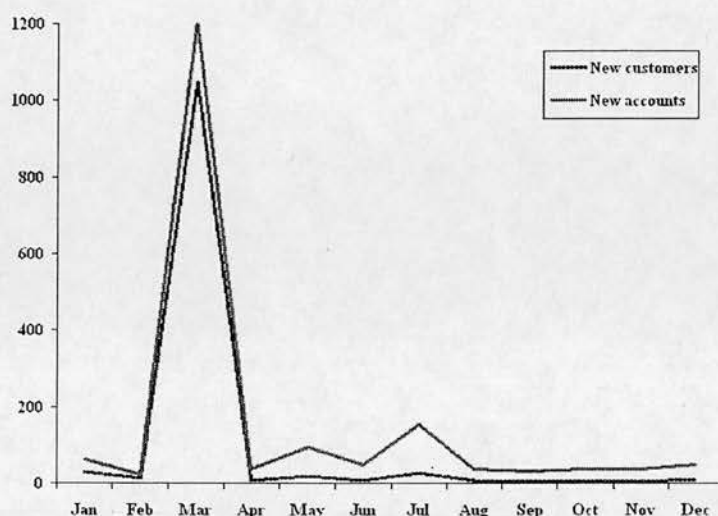


Figure 10.4.VIII New investors and investment accounts during 2005 (Tadawul R&D Manager)

During 2005, the number of investors in the share market has almost doubled. One of the main drivers behind such a sharp increase was the floating of new companies. During the previous two years, the share market experienced the floating of seven companies (see Table 10.4.III).

Company	Floating date	No. of existing investors	No. of new investors	No. of shares (m)
Sahara	May 2004	500,593	71,525	6
Etihad	October 2004	3,669,433	607,394	20
NCCI	December 2004	796,866	22,176	7
AlBilad	February 2005	7,669,833	1,031,235	30
Sadafco	April 2005	1,031,108	12,253	1.76
Almarai	July 2005	1,678,755	21,590	4.5
Yansab	December 2005	8,499,103	360,826	39.38

Table 10.4.III IPOs at the Saudi share market during 2004-2005 (Tadawul R&D Manager)

Regarding banks (share brokers) Tadawul's is in the favourable position of virtually not having "target constituents" since, at present, it is a monopoly service to share brokers. This means the banks have little option but to be members of the Tadawul constituency if they wish to have access to services that encourage investments in the share market. This does not mean that Tadawul takes for granted the banks' custom. Thus, as Tadawul's MD made clear, "Tadawul has no competition, but still pushes to improve the services to encourage investing in the share market."

Investors have to open investment accounts with Saudi banks in order to become members of the Tadawul constituency. As at the end of January 2006, the total number of investment accounts has exceeded four million accounts. Such accounts are distributed among the banks (share brokers) (see Figure 10.4.IX).

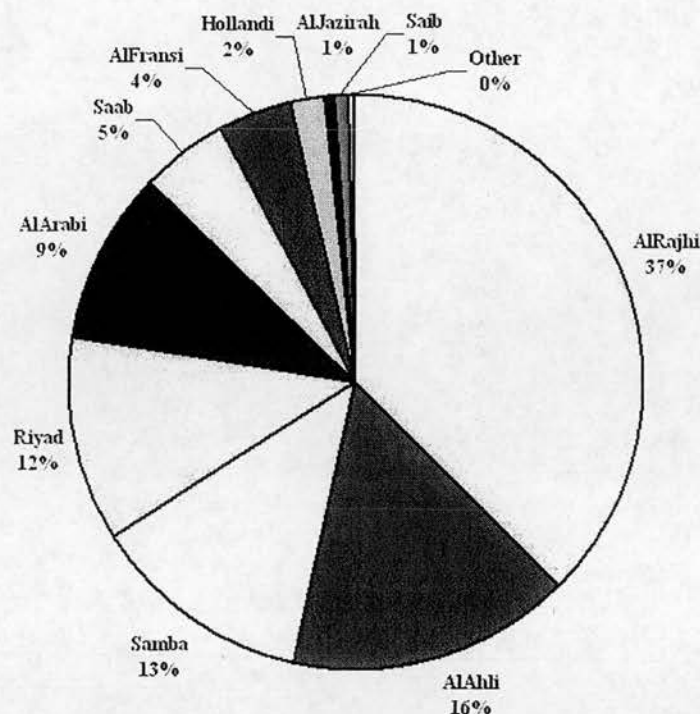


Figure 10.4.IX Banks share of investment accounts as of January 2006 (Tadawul R&D)

In the future, the favourable position of the Tadawul constituency in the Saudi share market is expected to change. Today, Tadawul has a single contract with CMA to perform the functions of the Securities Depository Centre and the Stock Exchange. However, the contract to perform such functions is temporary until the official launch of both the Securities Depository Centre and the Stock Exchange. This may open up the share market to a competitive challenge as the CMA contract might be performed by more than one IT company.

10.4.5 Alignment (3-3i) - Nature of target problem

By and large, the capacity of the Tadawul constituency has been well aligned with the nature of its target problem. Thus, there were two main objectives behind the launch of Tadawul in late 2001. One of objectives was to enhance services and capacity. Tadawul's MD describes the drivers behind enhancing services and capacity:

“At the late 1990s, there was a plan to launch new ideas to the [share] market. Such new ideas were not possible with the existing features of ESIS. Therefore, we had to choose either to continue enhancing ESIS or to develop entirely a new system to furnish the new ideas. We have chosen to develop a new system, Tadawul.”

The Tadawul constituency-building process started with the vision of promoting “the development of the capital market in Saudi Arabia,” (Tadawul survey 2003). The aim was to establish a modern market that can run independently and enhance the investment environment at the local share market. Tadawul's MD describes the mechanism in achieving such vision:

“The mechanism to achieve our vision was to develop an open system that allows banks to compete. In the past, SAMA was providing everything to banks, such as screens, workstations, reports ... etc. Now we moved to a more open system architecture where we provide data fields to banks and banks develop their own systems to interface with our systems. Banks then present data in different ways so they can compete in the services they provide to their clients.”

Well defined objectives have, from the beginning, characterised the Tadawul constituency's approach to the target problem implied in its vision. According to Tadawul's MD, such objectives were:

1. To develop an interactive environment for local investors as well as international investors
2. To allow banks to compete in providing services based on the infrastructure of Tadawul.
3. To provide local investors with additional services comparable to international markets.

The development of the Tadawul system took a pioneering step with little existing precedent. The technical experience gained during the development of ESIS in the 1990s was successfully used in the development of Tadawul. The benefits envisaged and realised by the operation of the new system have been large. From an intra-departmental point of view, Tadawul lowered the cost of operating and maintaining the share market, as all technical, supervisory, and administrative affairs related to the share market have been centralised at Tadawul.

From SAMA and CMA point of views, Tadawul furnishes the share market with a new infrastructure that helps “the development of the capital market in Saudi Arabia,” For instance, the provision of market information beyond banks' branches would have not been possible without the new infrastructure. Banks have also received many benefits from the operation of Tadawul. On one hand, banks now have the ability to service their customers and provide improved products and services (see Alignment 4-4i). On the other hand, banks have lowered their operational costs via automating many share market activities. For example, SambaTadawul, the local share trading service provided from Samba, reduced the cost of operating share-trading halls. Table 10.4.IV provides the time of the launch of Tadawul service by banks via selected channels.

Bank	Channel	
	Trading halls	Internet
AlRajhi	2001	2002
Samba	2001	2002
AlAhli	2001	2004
AlFaransi	2001	2004
AlArbi	2001	2004
Riyad	2001	2005
Saab	2001	2005
Saib	2001	2005
Hollandi	2001	2006
AlBilad	2005	2006

Table 10.4.IV Millstones of banks' Tadawul channels

Available technical capabilities, human, and financial resources have been well matched to the envisaged objectives. The initial cost consumed a large portion of the annual budget of SAR 35 m, the initial development time extended to about 18 months since early 2000. Tadawul's initial team grouped 40 people entrusted with introducing Tadawul. Later, the team grew to about 100 people. The Tadawul constituency has also counted on a strong authority from SAMA and a strong support from both SAMA and the banks. Although banks played a major role in the emergence of Tadawul, the main driver was SAMA. Tadawul's MD acknowledges SAMA's role in driving Tadawul:

"One of the advantages that we have in Saudi Arabia is the close relationship between SAMA and banks. SAMA plays a leadership role in developing banking ICT infrastructures, such as Tadawul. Other regional countries have much lower developed infrastructures than what we have. Therefore, a lot of credit goes to SAMA. The willingness of Saudi banks in taking the lead in providing advanced products and services to their clients also should not be ignored. I think we have to be just proud of it."

However, the alignment between the capabilities of the Tadawul constituency and the technical requirements for the timely delivery of the new system's performance has not been without difficulties. First, the main difficulty was to meet the project's deadline. Two factors explain it. The first factor was the selection of a rather tight deadline to force banks to have their technological systems ready to absorb Tadawul (see Alignment 4-4i). The second factor was the relation with IT vendors. For example, the main software supplier went bankrupt shortly after the launch of Tadawul. This delayed the development process as many applications required regular maintenance and update (see Alignment 2-2i). Later, Tadawul faced the challenge of launching a new version of the Tadawul's website during the third quarter of 2004, as the market required Tadawul to add new services (e.g., Tadawul Streaming Quotes). Tadawul spent about eight months to develop an entirely new website.

Another difficulty was the substantial re-engineering of the existing activities. Organisationally, restructuring the share market (e.g., the development of the Tadawul Department in 2001) as well as modifying the technical logic of share trading transactions (e.g., the provision of e-certificates for shares' ownership) required re-programming the share trading procedures. Such re-engineering also required significant change in skills and re-training of employees (e.g., Tadawul certificate). The positive aspect was that this was anticipated in the design and strategy of Tadawul.

The following case of the time and transparency feature before and after the introduction of Tadawul highlights the complex challenge of re-engineering. According to Tadawul Magazine (2002), time and transparency of financial information are major factors in the investment decision-making process. The role of presenting financial information about listed companies had been difficult with ESIS. Data had been obtained via fax or newspapers. This required the Banking Technology Department (BTC) to enter them into the ESIS in order to produce financial reports about the performance of the share market. Tadawul eliminated this challenge through presenting live financial information on Tadawul's

web site. Listed companies enter their financial data to Tadawul that presents such information to the public.

The introduction of Tadawul enhanced the share trading and investment environment:

"Tadawul implied changes at the [share] market not only at the technical aspect, but also at other aspects. The structure of the [share] market has been changed. New trading rules and features have been introduced. A new management has been introduced. The relationship with SAMA has changed," (Tadawul MD).

Undoubtedly, the Tadawul constituency will continue to face new challenges as it strives to fulfil its broad target problem of developing the capital market in Saudi Arabia through enhanced services and capacity. So far the Tadawul constituency has responded demonstrating it has good dynamic capabilities. It will need them in the evolving environment of e-banking. Thus, Tadawul's MD highlights how objectives change:

"When you achieve something you probably establish a new target or objective. For example, the service of information dissemination has turned out to be a good source of income for us. So we capitalise the investment as a source of income for the Stock Exchange. Moreover, based on the concept of being the only provider of a gateway to banks, we keep enriching that data fields with additional services that the banks can use. Also based on the feedback that we get from banks, we have added new services to support the requirements of investors that came out during the period of development."

10.4.6 Alignment (4-4i) - Interacting technologies/constituencies

The Tadawul technological system is intrinsically an interacting technology. It has open system architecture with an application program interface (API) facilitating interface to banks' internal systems. Such architecture was one of the reasons behind the launch of Tadawul. Tadawul's MD highlights the drivers behind the movement to open system design and the benefits envisaged from such movement:

"One of the new services that were not available in the past is the real-time settlement. Now trading orders are settled immediately when the matching occurred, a feature which is called t+0. This adds more liquidity and efficiency to the market as it gives investors more control over their portfolios. It also adds a lot of information dissemination tools. Now we give access to Reuters and other information providers to take the market information and disseminate it to their users' base. Moreover, through our website we disseminate a lot of data. Companies can access our systems through the website and published stock trading related data, such as financial analyses and price sensitivity announcements. All these are done through Tadawul systems."

A smooth relationship characterises the interaction between Tadawul technological system and other technological systems at both intra- and inter-organisational levels. Intra-organisationally, the migration from ESIS to Tadawul in October 2001 simply meant that Tadawul rapidly replaced ESIS. The added technical features of Tadawul, such as the real time settlement of share transactions,

enhanced the performance of settlement and clearance service of shares. For example, in 2003 the Tadawul technological system achieved in 2003 more than 26 transactions per second.

Whilst the case at the intra-organisational level occurred rapidly, its situation at the inter-organisational level was more mixed. Some banks, such as Saib, displaced their ESIS's settlement and clearance systems (i.e. ESIS constituent) with entirely new Tadawul systems (i.e. Tadawul constituent). Others, such as Samba, have chosen to blend their Tadawul's settlement and clearance systems (i.e. Tadawul constituent) with ESIS's settlement and clearance systems (i.e. ESIS constituent). The performance in both cases was also mixed. One possible reason for such variation is that the performance of a settlement and clearance system is based on other factors in addition to the technological ones.

The relationship and interaction between the Tadawul technological system and other technological systems caused some difficulties. A prime issue was to force banks to have their technological systems ready to absorb Tadawul. While some banks took early steps commencing in 2001 to enhance or replace their systems to cope with Tadawul (e.g., AlRajhi), others are still behind (e.g., Sabb).

The Tadawul technological system also has relationships with other existing or under-developed systems. Each relationship has its own implications on Tadawul technological system. The first example of the existing relationship is with SARIE. The most important objective from linking Tadawul with SARIE is to perform the clearance function of the capital market (see Figure 10.4.V). Such function is done through exchanging online messages between SARIE and Tadawul. Moreover, the fact that Tadawul was developed to perform t+0 feature requires SARIE to make Tadawul's messages the most important received messages. Another objective from the link between Tadawul and SARIE is coupled with the Anti-Money Laundering Law that monitored cash flow to and from the share market. Such a link has no implication on the performance of Tadawul's technological system as the synchronisation of data occurs overnight (see Alignment 1-1i) (Tadawul R&D Manager).

A second example of Tadawul technological system's existing relationship concerns dissemination systems such Reuters, PDA, and Mubasher services. "Companies can access our systems through the website and published stock trading related data, such as financial analyses and price sensitivity announcements," (Tadawul MD).

In addition to such existing relationships, Tadawul has important not-yet-well-developed relationships with SARIE, from one hand, and securities trading, clearing and settlements systems at some regional stock exchanges, from the other hand. The trading of REPOs is currently a closed security trading market between SAMA and banks. Such trading is done through SARIE. CMA's announcement during November 2005 about the plan for opening REPOs trading for all investors requires the migration of such technical facility from SARIE to Tadawul. Until now, the migration process is faced

with technical challenges, in particular real delivery vs. payment feature (DVP), that delay REPOs public trading (Tadawul R&D Manager).

Another not-yet-well-developed relationship is with regional share markets. An initiative is being developed aiming to link securities trading, clearing, and settlements systems of GCC counties (e.g., UAE, Oman) with each other. Such an initiative is one of the consequences of the efforts to unite stock exchanges in GCC countries (SAMA 2002). The OMX's contract has been signed at the same time as OMX signed a similar contract with Dubai Financial Market (DFM), in UAE, to provide a new trading system in order to enhance the DFM's IT infrastructure. Such trend toward alliances with OMX might be under the same umbrella of uniting GCC's stock exchanges.

From a technical viewpoint, Tadawul is not different from those systems operated in GCC counties as similar applications are used in such systems. However, Tadawul, as a share clearance and settlement system, has many advanced features compared to similar systems in other share markets.

“From a system point of view, Tadawul is not very different. Our main feature is the real time settlement. The other thing is that our trading volume is much higher than any other GCC stock exchange,” (Tadawul MD).

Whatever the status of the relationship and interaction between Tadawul's technological system and other technological systems, the migration from ESIS to Tadawul implied modifications in skills and training. A massive training was provided not only to Tadawul's team of SAMA, but to members of the Tadawul constituency at each bank as well. Tadawul's certificate and training courses at IOB are examples of such training.

10.4.7 Summary

The process of Tadawul constituency-building shows a more mixed degree of alignment with dimension 3, nature of target problem. It comes between the degrees of alignment with dimensions 1 and 2, on the one side, and that with dimension 4, on the other side. A significant alignment characterises some aspects, such as the use of ESIS's technical experience into Tadawul's development and the new open technical infrastructure. However, a weak alignment occurred in some aspects, such as meeting the delivery deadline and the bankrupt of the main software supplier. The challenge of the substantial re-engineering of existing activities (e.g., time and transparency feature) is another example of weak alignment.

10.5 Conclusion

This chapter investigated the emergence and evolution of the securities trading, clearing, and settlements systems in Saudi Arabia. It provided a brief overview of the Saudi capital market and some of the key events shaping its developments in almost 25 years of existence. It then looked at the particular development of the Tadawul constituency through the conceptual lens of the “diamond of alignment” (Molina 1995). The discussion showed that the performance of the Saudi capital market

through the Tadawul constituency is healthy in both financial and technological terms. However, in a changing world, it is worth stressing that the implementation of the Saudi capital market strategic approaches requires high degrees of alignment with organisational and industrial corporate policies. The choice of the Saudi capital market strategic approaches by organisations depends not only on the capabilities of the organisations, but also on the opportunities the sector provides.

Chapter 11: Discussion on value creation in Saudi e-banking

11.1 Introduction

The aim of this chapter is to compare and contrast the emergence and evolution of e-banking among the seven case studies discussed earlier. It focuses on the main questions of this thesis: (1) how do banks implement e-banking to build their capabilities as well as to create new value strategies? (2) How have e-banking capabilities been built? (3) What role has e-banking played in shaping the strategic direction of banks?

The discussion makes use of instruments associated to the “sociotechnical constituencies” approach (Molina 1990; 1993) namely, the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005) of e-banking constituency-building processes.

The combined use of the tools produces a detailed (quantitative) assessment of the current state of the process of sociotechnical alignment for each of the e-banking constituencies (“alignment web”) (Molina 2003). In addition, in the case of three e-banking constituencies (i.e. AlAhli, Riyad, and Tadawul) a deeper quantitative assessment of strategic priorities is conducted through the “dynamic strategy mapping” (DSM) (Molina 2005), although restricted only to the present situation (not evolutionary). The latter is important because a broad understanding of strategy approaches reveals the directions but not the many specific aspects that make up the broad strategy in each particular e-banking constituency.

Thus, if we consider broad value-creation strategies, such as Porter’s generic and positioning strategies, it is clear that they can be pursued by combining in many alternative ways the many detailed ingredients having an incidence in the generation of broad strategies. The unpacking of these detailed ingredients and the specific combinations they show for the strategies of different constituencies are what the “dynamic strategy mapping” (DSM) (Molina 2005) is all about. Only in this manner would it be possible to clarify, for instance, why two constituencies that may be classified as following “cost leadership” or “differentiation” strategies (Porter 1985) in the same market may have different results. In addition, once this unpacking is done, then one can make a sound judgement and characterisation as to which of the “generic” (Porter 1985) and/or “positioning” strategies (Porter 1996) a constituency-building process is pursuing, has pursued, or is intending to pursue.

The discussion in this chapter also takes a comparative perspective, highlighting the differences and similarities among the seven case studies.

The chapter starts with the application of the “alignment web” (Molina 2003) to analyse quantitatively the current state of the process of sociotechnical alignment for each of the Saudi e-banking constituencies. This assessment deepens the more qualitative assessment conducted in the previous chapters with the cases studies. It is also complementary since the content of the “diamond of alignment” (Molina 1995) table was developed by the author⁷⁵ as a summary interpretation of the constituency-building story, while the markings of the “alignment web” (Molina 2003) are given by key players in each of the e-banking constituency-building processes.

This is then supplemented by the application of the “dynamic strategy mapping” (DSM) (Molina 2005) in the case studies of three e-banking constituencies (i.e. AlAhli, Riyadh, and Tadawul), illustrating a much more detailed characterisation of the broad value-creation strategies.

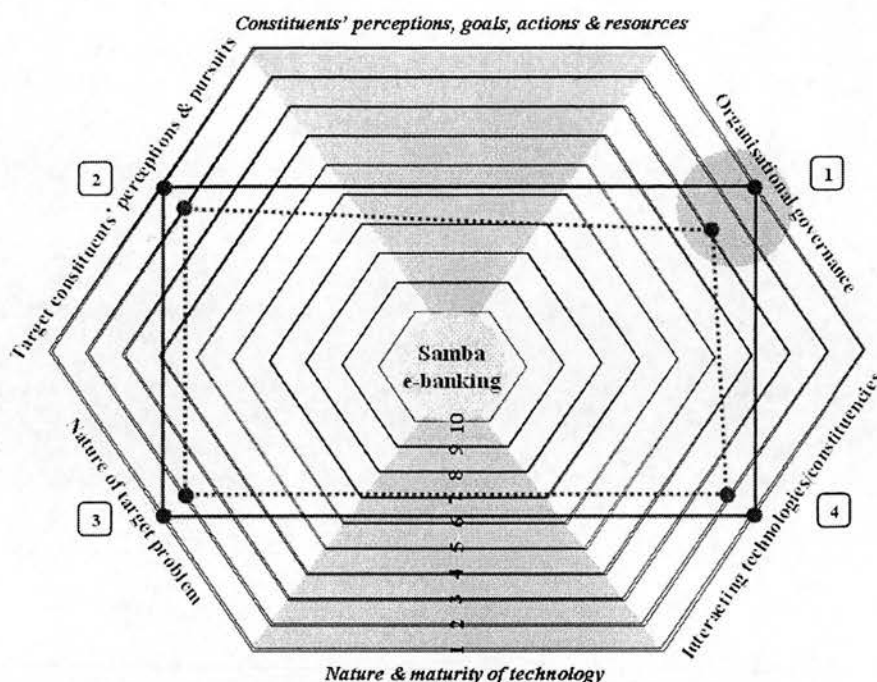
11.2 Alignment web of e-banking’s constituency-building process

The previous chapters on the case studies have looked in detail at the evolution of the various processes of e-banking sociotechnical alignment in most of the Saudi banks. The aim of this section is to assess the current degree of sociotechnical alignment in a more quantitative fashion by using “alignment web” (Molina 2003) at each case study (i.e. Samba, AlRajhi, Saib, Hollandi, AlAhli, Riyadh and Tadawul). This is followed by placing the evaluations of the seven case studies onto a single “alignment web” (Molina 2003). I start with the case study of Samba.

11.2.1 Samba Financial Group (Samba)

The current state of alignment in the Samba e-banking constituency-building process shows a great deal of strength. Figure 11.2.I positions the current state of the process of sociotechnical alignment at Samba within the “alignment web” (Molina 2003).

⁷⁵ The development of the table relied heavily on Molina (2003).



Main dimension	Sub-dimension	Mark
Alignment (1-1i) - Organizational governance	• Flat decision-making structure	3
	• Rewards for ICT-based innovators	4
	• Encouragement to new ways of work	3
	• Developers' collaboration and teams	2
	• Assessment appropriate to new banking methods	3
	• Customers' participation in development	5
	<i>Average</i>	3.33
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	2
	• Target customers	3
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	3
	• Executive management	2
	<i>Average</i>	2.17
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2
	• Very important to bank	2
	• Highly motivating to leaders/innovators	3
	• Very important to banks' developers and customers	3
	• Well inside space and time resources available	1
	• Well inside financial/material resources available	2
	<i>Average</i>	2.17
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	2
	• Easy with displacement of obsolete practices	3
	• High presence of required complementary technologies	3
	• High presence of useful complementary technologies	2
	• Low opposition from competing ICT-based system	3
	• Effective mechanisms for socialising new mix of technologies	1
	<i>Average</i>	2.33

Figure 11.2.I Samba's "alignment web" as of today (Source: Samba's e-Banking Analyst)

Figure 11.2.I shows that the alignment with "target constituents" received the highest mark (i.e. 2.17). The most difficult "target constituents" are in fact "target customers" and "administrative personnel"

while the “CEO” is given the top mark of 1, reflecting the fact that he is firmly supportive of the constituency (i.e. a “constituent” rather than a “target constituent”). For “target customers” in particular, the marking is interesting. Although the current penetration rates of most e-banking products and services are encouraging, Samba is looking forward to enhancing such rates to reach a stronger degree of alignment (i.e. mark 1) rather than the present lower degree of 3. Good examples of this effort are SambaOnline, SambaDirect, SambaTadawul and SambaPhone which achieved 1700%, 300%, 122% and 41% increase on average number of transactions per day, respectively. All others “target constituents” are in-between with a significant degree of alignment (i.e. mark 2).

The alignment dimension “nature of the target problem” received an average marking similar to that of “target constituents” (i.e. mark 2.17). Figure 11.2.I reveals that the weakest areas are “highly motivating to leaders/innovators” and “very important to banks’ developers and customers”. The behaviour of the Samba constituency following the end of the technical management agreement with Citibank is an example. The scope of the behaviour included a wide range of technical dependencies that had been built over the last two decades, such as Citibank’s proprietary tools, processes and communication networks segregation. Such technical dependencies created technical challenges that negatively influenced the degree of alignment (i.e. insignificant) with the areas of “highly motivating to leaders/innovators” and “very important to banks’ developers and customers”. In turn, Figure 11.2.I also reveals that the strongest area is “well inside space and time resources available”, with a strong degree of alignment (i.e. mark 1). An example of the availability of space is the allocation of modern premises for the Technology Group outside Samba’s Head-Office while an example of the availability of time is the launch of SambaOnline six month earlier than the schedule.

In turn, the assessment of key factors in the dimension of “interacting technologies” also reveals that “easy with displacement of obsolete practices”, “high presence of required complementary technologies” and “low opposition from competing ICT-based system” are processes that still require effort at Samba. The technical accumulation of different technologies brought from Citibank helped to enhance the degree of alignment. The migration from DEFINE to the open back-office system to enhance the systematic interaction also enhanced the degree of alignment. However, the marking of “effective mechanisms for socialising new mix of technologies” is different. For example, the informative content at SambaOnline and the payment mechanism of SambaConnect show that such area of “interacting technologies” plays a very effective role.

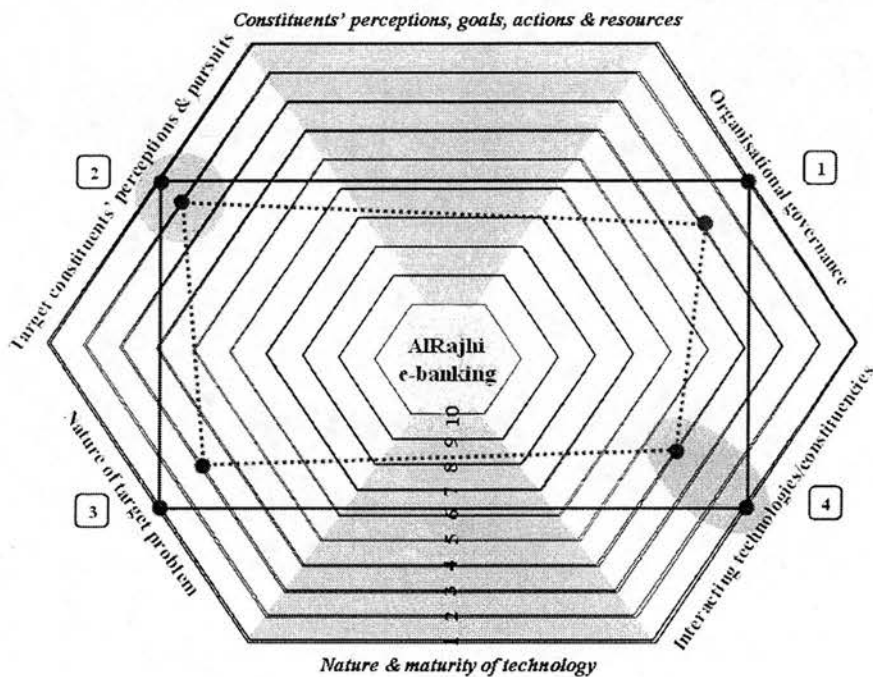
Finally, Figure 11.2.I reveals that the alignment with Samba’ organisational “governance” received the lowest average mark of 3 (i.e. insignificant alignment). Within the “governance” dimension, the strongest area is “developers’ collaboration and teams”, with a significant degree of alignment (i.e. mark 2). Examples that support this achievement include the alignment with standards imposed by CTG on e-banking development, the participation in IT decision-making processes through e-Board, the high acceptance rate of many departmental systems, such as e-Procurement & Travel and

Expenses. In turn, the weakest within the “governance” dimension is “customers’ participation in development”, with a strong degree of mis-alignment (i.e. mark 5). This degree of alignment as well as that of the “target customers” of Dimension 2 (i.e. mark 3) raise a concern about the role of customers during the e-banking development process.

In summary, the current state of alignment in the Samba e-banking constituency-building process shows a great deal of strength. The weakest areas were identified inside “governance”. The constituency has work to do on these weak areas in order to improve its future development.

11.2.2 AlRajhi Bank (AlRajhi)

Unlike that of Samba, the evolution of the process of sociotechnical alignment at AlRajhi has followed a fluctuation pattern. Figure 11.2.II positions the state of the process of sociotechnical alignment at AlRajhi within the “alignment web” (Molina 2003) as of today, at the end of the present phase (i.e. 2001-2006).



Main dimension	Sub-dimension	Mark
Alignment (1-1i) – Organisational governance	• Flat decision-making structure	3
	• Rewards for ICT-based innovators	2
	• Encouragement to new ways of work	4
	• Developers’ collaboration and teams	2
	• Assessment appropriate to new banking methods	3
	• Customers’ participation in development	5
	<i>Average</i>	3.17
Alignment (2-2i) - Target constituents’ perceptions and pursuits	• Target developers	1
	• Target customers	3
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	2

	• Executive management	1
	<i>Average</i>	1.67
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2
	• Very important to bank	2
	• Highly motivating to leaders/innovators	2
	• Very important to banks' developers and customers	3
	• Well inside space and time resources available	3
	• Well inside financial/material resources available	3
	<i>Average</i>	2.50
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	4
	• Easy with displacement of obsolete practices	2
	• High presence of required complementary technologies	4
	• High presence of useful complementary technologies	3
	• Low opposition from competing ICT-based system	3
	• Effective mechanisms for socialising new mix of technologies	5
	<i>Average</i>	3.50

Figure 11.2.II AlRajhi's "alignment web" as of today (Source: AlRajhi's e-Banking Manager)

Dimension (2) "target constituents" shows the highest average degree of alignment (i.e. mark 1.67) of the AlRajhi constituency-building process, with a fundamental influence brought by the areas of "target developers", "CEO" and "executive management". All of these three areas received a strong degree of alignment (i.e. mark 1). An example for "target developers" is the acquisition of AlAhli's e-Banking Analyst to launch bill payment gateway, in particular, and EBDDA-2, in general (see Dimension 3 below).

These are followed by the areas of "technical personnel" and "administrative personnel", with both achieving a significant degree of alignment (i.e. mark 2). An example is the interaction between operational staff at the branches and technical staff at the Head-Office prior to the launch of EBDDA-2. Prior to the launch of EBDDA-2, there was a concern raised by the branch staff that the deployment of new e-banking products and services might threaten their jobs. However, the technical staff at the Head-Office started open talks with branch staff with the aim of clarifying such misunderstanding about the implications of e-banking.

The most problematic area at the "target constituents" is "target customers", with an insignificant degree of alignment (i.e. mark 3). An example that supports "target customers" receiving an insignificant degree of alignment is the low acceptance rate of AlMubasher. Almost 2 years after the first launch, only 2% of retail customers are using AlMubasher.

Figure 11.2.II also assesses the constituency's alignment with "nature of target problem" and reveals that the categories: "very important to banks' developers and customers", "well inside space and time resources available" and "well inside financial/material resources available" require attention at AlRajhi, with all achieving an insignificant degree of alignment (i.e. mark 3).

In turn, the remaining three areas of Dimension 3 (i.e. "nature of target problem"): "well inside expertise/capabilities of constituency", "very important to bank" and "highly motivating to

leaders/innovators” received a significant degree of alignment (i.e. mark 2). The acquisition of AlAhli’s personnel is an example of a significant alignment with the area of “well inside expertise/capabilities of constituency”. Such acquisition provided AlRajhi’s constituency with the required expertise to launch the bill payment gateway.

Figure 11.2.II also assesses the constituency’s alignment with “organisational governance” and reveals that, in common with Samba, the weakest area is “customers’ participation in development”. The AlRajhi constituency assumes that the investment decisions of local customers are based on recommendations received from their trusted colleagues or friends rather than scientific reading and analysis of market trends. Such an assumption encouraged the constituency to focus on the issue of customer retention more than attracting new customers. Results for the acceptance rates were modest (e.g., Tadawul and AlMubasher eCorp were 10-15%).

In turn, the areas of “rewards for ICT-based innovators” and “developers’ collaboration and teams” are the strongest areas. An example of the former area is the monthly meeting of top management with the e-banking initiative’s host department to review the progress and take decisions on emerging issues. Such regular meetings constitute an emotional reward mechanism symbolised in a culture of developers’ participation in decision-making. An example of the latter area is the formation of the managing team for each e-banking product and service.

Finally, Figure 11.2.II clearly reveals that the most problematic dimension is Dimension 4 of the “diamond of alignment” (Molina 1995) (i.e. “interacting technologies/constituencies”), with an alignment mark of 3.50 (i.e. weak-insignificant). Inside, the most difficult area is “effective mechanisms for socialising new mix of technologies”. An example that negatively influenced the degree of alignment with the area of “effective mechanisms for socialising new mix of technologies” is the case of deploying Oracle’s CRM application during 2004. AlRajhi aimed during 2004 to improve the customer service function through the deployment of Oracle’s CRM application. However, the entire features of Oracle CRM work more efficiently if it operates within Oracle e-Business Suite (Oracle 2006). Accordingly, AlRajhi deployed Oracle e-Business Suite although there was no crucial need for the other applications within the suite, increasing the operational cost of the customer service function.

The areas of “easy technical integration between new and existing legacy system” and “high presence of required complementary technologies” are also problematic at AlRajhi, with an insignificant degree of alignment (i.e. mark 3). An example is the relationship with Farabi. The virtual link between the mainframe and AlMubasher’s host server required the use of Farabi’s HostFront and HostFront Publishing to synchronise data. The precise difficulty here was the use of complementary technologies (i.e. Farabi products) to make the virtual channel (i.e. Mainframe-AlMubasher’s host server)

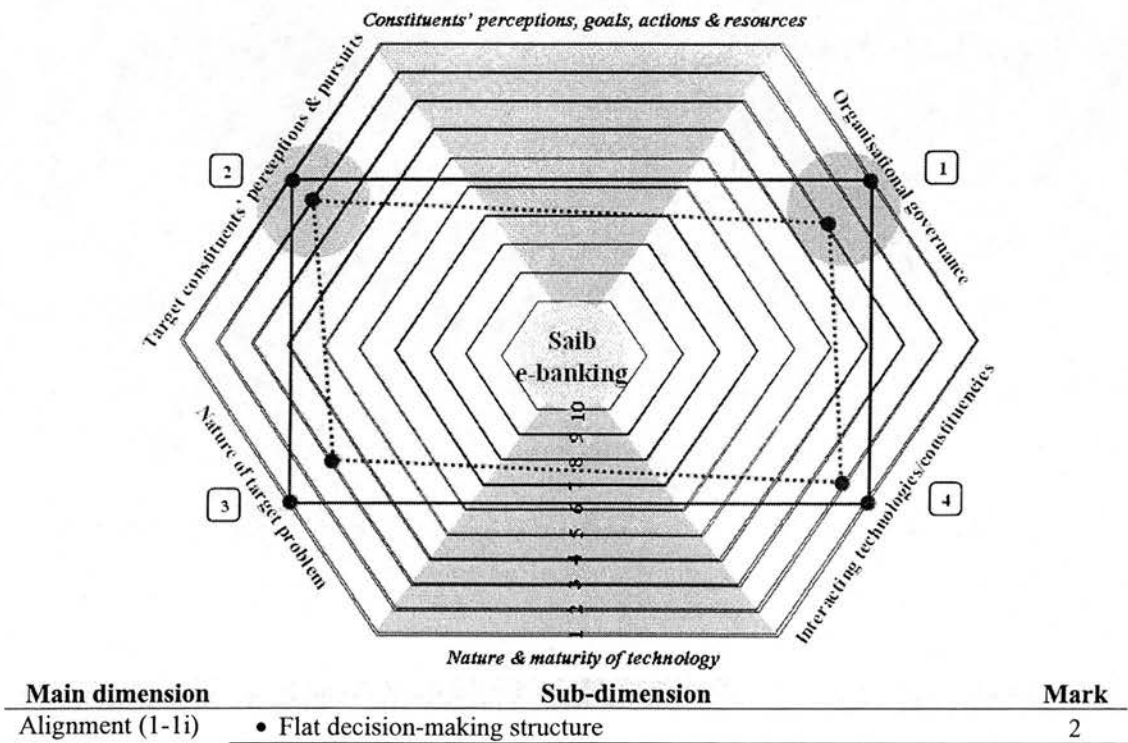
operational. This not only expanded the path of data synchronisation, but also increased the transaction processing time.

In turn, the strongest area inside “interacting technologies/constituencies” is “easy with displacement of obsolete practices”. Two examples support such an area receiving a significant degree of alignment. The first example is the interaction between AlRajhi and STC constituencies via the bill payment gateway. The second example is the interaction between the components of EBDA-2 and the legacy systems.

The present state of alignment of the AlRajhi e-banking constituency-building process shows its strongest marking with regard to the dimension “target constituents”, and the highest and lowest average markings are more marked than those of Samba, implying that in AlRajhi the areas of higher alignment weakness are stronger than for Samba, while the areas of higher alignment strength are also stronger than for Samba.

11.2.3 Saudi Investment Bank (Saib)

The evolution of the process of sociotechnical alignment at Saib as a small bank in terms of financial indicators provides additional insights to that provided by Samba and AlRajhi as large banks. The origins of Saib e-banking constituency developed gradually, in a close interplay between intra- and inter-organisational relations. For instance, a great deal of ICTs expertise came from outside. Figure 11.2.III places the current overall state of alignment of Saib’s e-banking constituency-building process within the “alignment web” (Molina 2003).



– Organisational governance	• Rewards for ICT-based innovators	4
	• Encouragement to new ways of work	3
	• Developers' collaboration and teams	3
	• Assessment appropriate to new banking methods	3
	• Customers' participation in development	5
	<i>Average</i>	3.33
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	3
	• Target customers	4
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	2
	• Executive management	1
	<i>Average</i>	2.17
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2
	• Very important to bank	4
	• Highly motivating to leaders/innovators	2
	• Very important to banks' developers and customers	2
	• Well inside space and time resources available	2
	• Well inside financial/material resources available	3
	<i>Average</i>	2.50
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	2
	• Easy with displacement of obsolete practices	2
	• High presence of required complementary technologies	3
	• High presence of useful complementary technologies	2
	• Low opposition from competing ICT-based system	2
	• Effective mechanisms for socialising new mix of technologies	3
	<i>Average</i>	2.33

Figure 11.2.III Saib's "alignment web" as of today (Source: Saib's E-Commerce Head)

Figure 11.2.III reveals that the best average state of alignment occurred with Dimension 2 of the "diamond of alignment" (Molina 1995) (i.e. "target constituents"). Within this dimension, the most difficult "target constituent" is in fact "target customers". The penetration rate of Saib's e-banking products and services is still lower than the expectations of BIT's objectives of maintaining the customer base or offering a cross-selling channel for Amex, Orix, or both. The area of "target customers" is followed by the area of "target developers". An example is the four-month delay caused to Saib by InfoSys during the development of Equation. In turn, the strongest "target constituents" are "CEO" and "executive management". The flat organisational relationship between the IT Group and CEO helped to achieve such a strong degree of alignment.

The assessment of the constituency's alignment with "interacting technologies" reveals that "high presence of required complementary technologies" and "effective mechanisms for socialising new mix of technologies" are processes that require attention at Saib. An example is the unsuccessful negotiation with STC to provide a 2 G-bit bandwidth line to fulfil the technical need of some e-banking product and services. In turn, the significant degree of alignment (i.e. mark 2) for the remaining four areas shows that they play very effective roles. Thus, alignment with "easy technical integration between new and existing legacy system" received a significant degree of alignment due to some practices, such as the smooth integration of TI with Equation. Alignment with both "easy with

displacement of obsolete practices” and “low opposition from competing ICT-based system” showed similar good practice. Equation, for instance, helped Saib to launch its Internet banking service, which was not technically possible with the capabilities of MYDES.

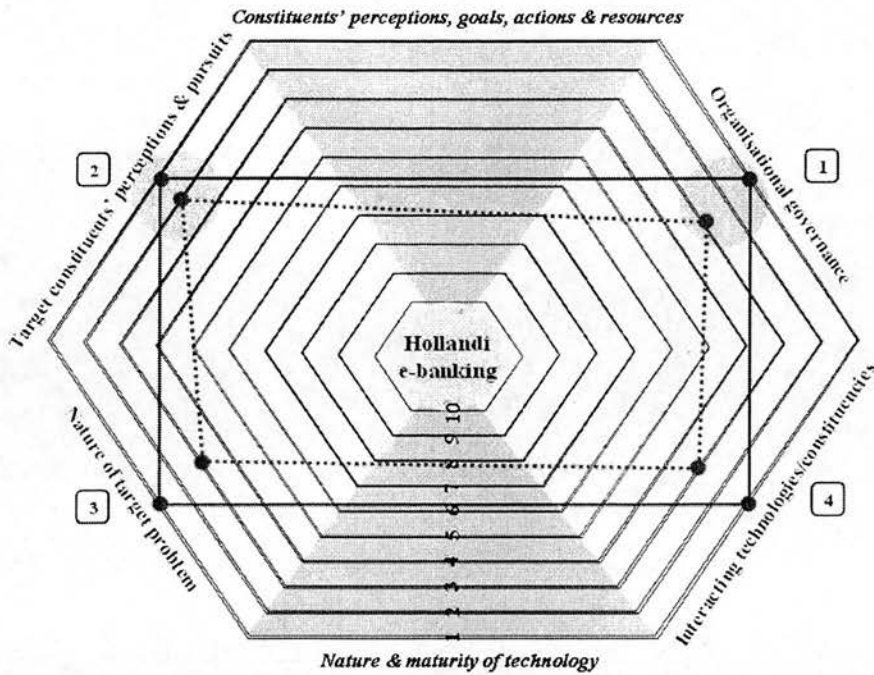
Figure 11.2.III also assesses the constituency’s alignment with the “nature of the target problem” and reveals that the weakest area is in fact “very important to bank”, with a weak degree of alignment (i.e. mark 4). A possible reason for such a modest progress at this area might be the evolution of Saib e-banking’s objectives in response to the change in Saib corporate policy, which aims to extend Saib’s focus to include retail banking in addition to corporate and investment banking. This can be clearly seen from the net income by business segments (i.e. investment & treasury, corporate and retail) during 2003-05. The net income from retail banking has increased from 47% in 2003 to 66% in 2005. However, such increase has coincided with a rather slow launch of e-banking products and services. For example, e-bill payments via ATM, Saib Internet, Saib SADAD and AswaqNet were launched in August 2003, April 2004, December 2004 and December 2005, respectively. Such conflict in trends between the net income from retail banking and the launch of retail e-banking supports the weak degree of alignment with the area of “very important to bank”.

The degree of alignment with the area of “well inside financial/material resources available” is slightly better than that with “very important to bank”, with an insignificant degree (i.e. mark 3). The 20% increase in the development cost and the four-month delay in delivery of the Internet banking service presented difficulties to this area of Dimension 3. The degree of alignment with the remaining four areas shows that they play very effective roles, with all achieving a significant degree of alignment (i.e. mark 2).

Finally, Dimension (1) “governance” shows the lowest average degree of alignment (i.e. mark 3.33) of the constituency-building. The weakest area is “customers’ participation in development”, with a strong degree of mis-alignment (i.e. mark 5). In turn, the strongest area within Dimension (1) (i.e. “governance”) is “flat decision-making structure”, with a significant degree of alignment (i.e. mark 2). The degrees of alignment with the remaining four areas are in-between. The areas of “encouragement to new ways of work”, “developers’ collaboration and teams” and “assessment appropriate to new banking methods” received an insignificant degree of alignment (i.e. mark 3) while the area of “rewards for ICT-based innovators” received a weak degree of alignment (i.e. mark 4).

11.2.4 Saudi Hollandi Bank (Hollandi)

Hollandi is another small bank in terms of financial indicators. Figure 11.2.IV positions the overall state of the process of sociotechnical alignment at Hollandi within the “alignment web” (Molina 2003). The assessment of the e-banking constituency-building process suggests that Hollandi has a great deal to do to achieve a strong alignment across all the dimensions of the “diamond of alignment” (Molina 1995).



Main dimension	Sub-dimension	Mark
Alignment (1-1i) - Organisational governance	• Flat decision-making structure	4
	• Rewards for ICT-based innovators	3
	• Encouragement to new ways of work	2
	• Developers' collaboration and teams	2
	• Assessment appropriate to new banking methods	1
	• Customers' participation in development	3
	<i>Average</i>	2.50
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	2
	• Target customers	4
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	3
	• Executive management	2
	<i>Average</i>	2.33
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	4
	• Very important to bank	2
	• Highly motivating to leaders/innovators	3
	• Very important to banks' developers and customers	3
	• Well inside space and time resources available	3
	• Well inside financial/material resources available	4
	<i>Average</i>	3.17
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	1
	• Easy with displacement of obsolete practices	2
	• High presence of required complementary technologies	3
	• High presence of useful complementary technologies	3
	• Low opposition from competing ICT-based system	3
	• Effective mechanisms for socialising new mix of technologies	4
	<i>Average</i>	2.67

Figure 11.2.IV Hollandi's "alignment web" as of today (Source: Hollandi's E-Banking Head)

Figure 11.2.IV shows that the best average alignment is credited to Dimension 2 of the "diamond of alignment" (Molina 1995) (i.e. "target constituent"). And similarly to the previous cases, the most

difficult “target constituent” is in fact “target customers”. Indeed, the modest evolution in “target customers” is related to the ambiguity regarding the customer segment (i.e. retail, corporate, or both) the constituency is trying to target.

Being mainly a corporate bank, Hollandi finds it easier to provide corporate e-banking products and services, such as Hollandi Online (corporate version), rather than retail e-banking. Although the constituency established the ATM Business Unit and repositioned many POS terminals, it has implemented inappropriate promotional strategies and activities. Such strategies and activities are more appropriate to corporate banking customers than retail ones (e.g., mail campaigns).

Another problematic “target constituent” is the “administrative personnel”. For example, the important opposition on available resources from TSD and the debate with TSD on approving e-banking initiatives negatively influenced the evolution of the Dimension 2. Next come “target developers”, “technical personnel” and “executive management” with a significant degree of alignment (i.e. mark 2). Finally, the best “target constituent” is “CEO” who is firmly behind the e-banking constituency.

Regarding alignment with “governance” (i.e. Dimension 1), the weakest area is “flat decision-making structure”. The e-banking initiative, for instance, has to approach a fragmented chain of authority consisting of the e-Channel Committee, TSC and BSC for approval and support. If the initiative is an Islamic e-banking product or service, then the approval of the Sharia’h Committee is also a requisite.

In turn, the strongest area is “assessment appropriate to new banking methods”. The entire chain is pervaded by ABN AMRO’s culture. On the one hand, such flow helped the executive entities at Hollandi to absorb ABN AMRO’s vision and perception. On the other hand, however, the flow of ABN AMRO’s culture met with a cultural difference when it moved to the lower entities (e.g., e-banking). A good example of a cultural difference among e-banking entities is the heated debate that took place during the formation of the e-Banking Department between TSD and the Corporate Banking Group. Such difference of opinion not only influenced the absorption between the vision and perception of the role of e-banking, but also affected communication among the e-banking entities. However, while e-banking has developed, the cultural difference between e-banking entities has been eliminated. This progress supports the strong assessment for the area of “assessment appropriate to new banking methods”.

The remaining areas of Dimension 1 either have been marked 2 (i.e. “encouragement to new ways of work” and “developers’ collaboration and teams”) or 3 (i.e. “rewards for ICT-based innovators” and “customers’ participation in development”). This reveals an environment where stimulus for innovation as well as the inputs from customers, can be improved, especially in the light of the low marks given to alignment with target customers. In addition, the constituency has faced some difficulties at the inter-organisational level of “governance”. Thus, it launched smart cards to replace

the traditional magnetic stripe cards and improve information security. However, these efforts have had a modest reach as the constituency did not participate in the development of the national legal e-banking framework or the B2B standards. This suggests the need to modify the formal mechanism for e-banking decisions as well as increasing the inter-organisational participation of various Saudi e-banking constituencies.

The assessment of the alignment with “interacting technologies” reveals that “effective mechanisms for socialising new mix of technologies” is the process that requires most attention at Hollandi. An example is the development of both versions of Hollandi Online (i.e. retail and corporate). The e-banking technological system was blended with the legacy systems previously in place. From a technical point of view, the blending was carried out well so that it enhanced the e-readiness of the e-banking technological system. From a social point of view, however, the blending was much more mixed. Such difference of view negatively influenced the initial launch of the Hollandi Online versions. Not only a two-year delay in launching Hollandi Online (retail version), but also a two-year off-line service in the provision of Hollandi Online (corporate version).

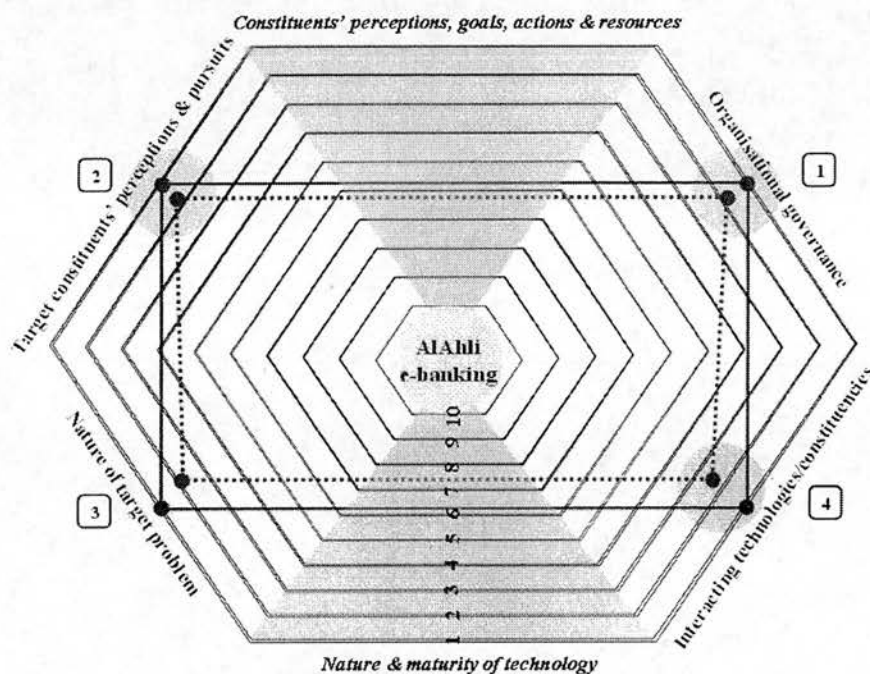
An insignificant degree of alignment (i.e. mark 3) is then given to “high presence of required complementary technologies”, “high presence of useful complementary technologies” and “low opposition from competing ICT-based system”. The markings, however, of “easy technical integration between new and existing legacy system” and “easy with displacement of obsolete practices” show that these factors play very effective roles. The positive results of the technical upgrades to Hollandi’s e-banking system commenced in 2003 bear witness to this. Such efforts have included the entire upgrade of the technological system to enhance the e-banking operational efficiency and the gradual accumulation of many ICT applications. These efforts have also extended to the branches, ATMs and share-trading lounges

Finally, Figure 11.2.IV shows that the constituency’s alignment with the “nature of the target problem” received the lowest average mark of 3.17, with the weakest category being “well inside expertise/capabilities of constituency” and “well inside financial/material resources available” and the strongest being “very important to bank”. The remaining areas are in-between, with a mark of 3. Particularly limiting here was the uncertainty that surrounded the vision and objectives of the Internet banking service during the early 2000s and that limited the allocation of resources (e.g., SAR 5 m as development budget) and requirements (e.g., 5 people).

In summary, the assessment of the “alignment web” (Molina 2003) has revealed that Hollandi’s e-banking constituency-building process has suffered from problems of resources, organisation and marketing. These problems will have to be addressed if Hollandi is going to pursue and achieve a stronger competitive position in the Saudi e-banking market. Such efforts should start by taking care primarily of the local market culture (i.e. Saudi culture).

11.2.5 National Commercial Bank (AlAhli)

Having assessed the state of alignment of e-banking constituency-building processes at Samba, AlRajhi, Saib and Hollandi, the discussion now looks at the state of alignment at AlAhli. Figure 11.2.V positions the current state of alignment at AlAhli e-banking constituency-building process within the “alignment web” (Molina 2003). The average results of AlAhli’s assessment are the highest so far, with the marks of three dimensions under or equal to 2.



Main dimension	Sub-dimension	Mark
Alignment (1-1i) – Organisational governance	• Flat decision-making structure	2
	• Rewards for ICT-based innovators	1
	• Encouragement to new ways of work	1
	• Developers' collaboration and teams	2
	• Assessment appropriate to new banking methods	2
	• Customers' participation in development	3
	<i>Average</i>	1.83
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	2
	• Target customers	3
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	2
	• Executive management	1
	<i>Average</i>	1.83
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2
	• Very important to bank	1
	• Highly motivating to leaders/innovators	2
	• Very important to banks' developers and customers	2
	• Well inside space and time resources available	3
	• Well inside financial/material resources available	2
	<i>Average</i>	2.00
Alignment (4-4i) - Interacting	• Easy technical integration between new and existing legacy system	2
	• Easy with displacement of obsolete practices	2

technologies/constituencies	• High presence of required complementary technologies	1
	• High presence of useful complementary technologies	3
	• Low opposition from competing ICT-based system	2
	• Effective mechanisms for socialising new mix of technologies	3
<i>Average</i>		2.17

Figure 11.2.V AlAhli's "alignment web" as of today (Source: AlAhli's e-Banking Head)

For instance, Figure 11.2.V shows that alignments with both "organisational governance" and "target constituents" are the best states of alignment, with an equal high mark of 1.83 (strong-significant). The strongest categories are "rewards for ICT-based innovators" and "encouragement to new ways of work" at the "governance" dimension, and "CEO" and "executive management" at the "target constituents" dimension.

Interestingly, like the other banks, the areas related to customers at both Dimension 1 and Dimension 2 (i.e. "customers' participation in development" and "target customers") are perceived as the weakest alignments (i.e. mark 3). The fact that only 10-15% of retail customers bank online shows that more efforts are required in order to increase revenue and market share. At the same time, AlAhli e-banking constituency lost the contract of STC on telephone bills but won that of utilities companies on electricity and water bills. Although AlAhli has implemented different promotional strategies and activities, such strategies and activities might have to be reassessed in order to better meet the demands and interests of target customers. This means that there are still a lot of "target constituents" that need to be aligned to become customers or members of AlAhli e-banking constituency.

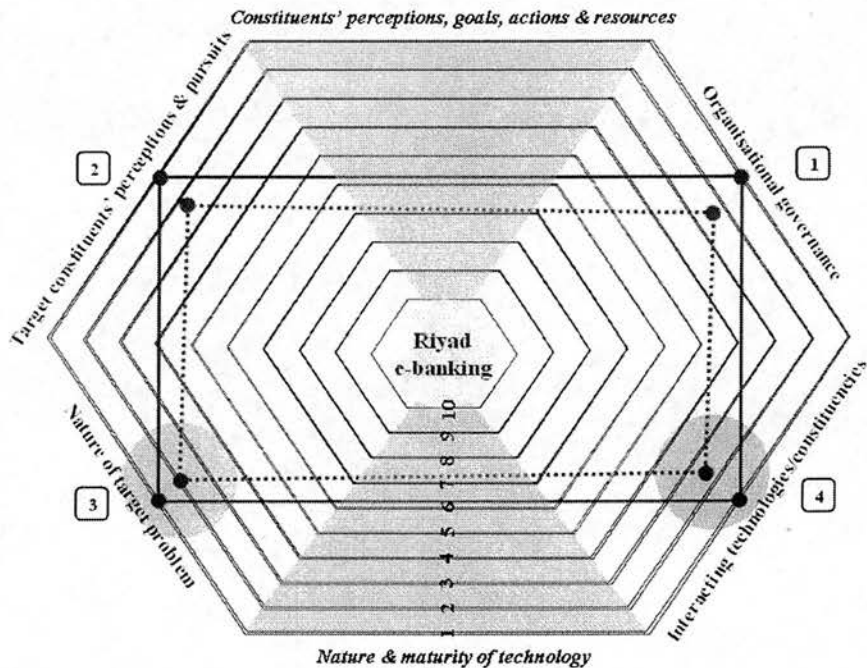
In turn, the areas of "assessment appropriate to new banking methods" and "target developers" in Dimensions 1 and 2, respectively, also received a significant degree of alignment (i.e. mark 2). For the area of "target developers", in particular, the initial assessment suggested that it should receive a strong degree of alignment (i.e. mark 1) as AlAhli e-banking constituency managed to acquire many SAMA technical staff (e.g., VP of Technology & Operations and Information Security Consultant). However, due to the fact that AlAhli e-banking constituency lost the STC contract as a consequence to the acquisition of its former e-Banking Analyst against AlRajhi e-banking constituency, the degree of alignment with "target developers" has been downgraded to a significant degree of alignment (i.e. mark 2).

The assessment of the alignment with the dimension "nature of target problem" reveals that "very important to bank" is the strongest area (mark 1) while "well inside space and time resources available" is the weakest area (mark 3). The remaining four areas are perceived as playing a positive part, with a significant degree of alignment (i.e. mark 2). For instance, the fact that the available financial and human resources have evolved during the development and implementation of e-banking has played a positive part in the capacity of the constituency to deliver.

Finally, Dimension (4) “interacting technologies/constituencies” shows the most challenging area, with the lowest average mark of 2.17. Inside this dimension, the weakest areas (mark 3) are “high presence of useful complementary technologies” and “effective mechanisms for socialising new mix of technologies”, while the strongest area is “high presence of required complementary technologies”. The area of “easy technical integration between new and existing legacy system” is given a significant degree of alignment (i.e. mark 2), although this is at a cost given that, at AlAhli, the e-banking technological system is sacrificing performance by blending with legacy systems, while it is establishing a well-coordinated relationship with other new systems in the process of development and implementation.

11.2.6 Riyadh Bank (Riyad)

Riyad is the last Saudi bank to be assessed through the “alignment web” (Molina 2003). Figure 11.2.VI positions the current overall state of alignment at Riyadh e-banking constituency-building process within the “alignment web” (Molina 2003).



Main dimension	Sub-dimension	Mark
Alignment (1-1i) – Organisational governance	• Flat decision-making structure	2
	• Rewards for ICT-based innovators	2
	• Encouragement to new ways of work	3
	• Developers' collaboration and teams	1
	• Assessment appropriate to new banking methods	3
	• Customers' participation in development	4
	<i>Average</i>	2.50
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	2
	• Target customers	4
	• CEO	1
	• Technical personnel	3

	• Administrative personnel	3	
	• Executive management	1	
		<i>Average</i>	2.33
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2	
	• Very important to bank	1	
	• Highly motivating to leaders/innovators	2	
	• Very important to banks' developers and customers	2	
	• Well inside space and time resources available	2	
	• Well inside financial/material resources available	3	
		<i>Average</i>	2.00
Alignment (4-4i) - Interacting technologies/cons tituencies	• Easy technical integration between new and existing legacy system	3	
	• Easy with displacement of obsolete practices	3	
	• High presence of required complementary technologies	2	
	• High presence of useful complementary technologies	4	
	• Low opposition from competing ICT-based system	2	
	• Effective mechanisms for socialising new mix of technologies	3	
		<i>Average</i>	2.83

Figure 11.2.VI Riyadh's "alignment web" as of today (Source: Riyadh's Remote Delivery Channels Manager)

Figure 11.2.VI shows that alignment with Dimension 3 (i.e. "nature of target problem") is the strongest with a significant degree of alignment (i.e. mark 2). Inside, "very important to bank" is the strongest area with the top mark of 1. Nevertheless, until 2004, the mission of being the leading Saudi bank was still far from having been reached. Getting close to fulfilling this overall "target problem" will require innovativeness and determination as e-banking implies a cultural change in relation to Riyadh's traditional products and services. However, the recent development in corporate strategy (i.e. the "national champion") has reinforced the degree of alignment with Dimension 3. Now, the quality of e-banking products and services is monitored and improved by the emerging unit, e-Channels Quality Unit. In turn, alignment with "well inside financial/material resources available" is felt to be the most problematic in this dimension with a mark of 3. The remaining four areas have been marked equally with a significant degree of alignment (i.e. mark 2).

Regarding the e-banking constituency's alignment with "target constituents", the best state of alignment occurred with the categories of "CEO" and "executive management", confirming strong support from top Riyadh authorities. Alignment with "target customers" is again the most problematic with a mark of 4. For instance, the percentage of Riyadh's active e-cards is much lower than the sector's average. Moreover, Riyadh's ATMs provide average services, as the ratio of withdrawal transactions to total transactions is almost the same as that of the sector. The remaining three areas of Dimension 2 have been marked in-between although the category of "target developers" is in better shape than the other two.

The conservative approach followed by the e-banking launch strategy has influenced the market penetration rate of Riyadh's e-banking products/services as a relatively small number of customers have been enrolled behind the constituency. The launch of RiyadhPhone in 2001 and Riyadh Tadawul in

2005 are revealing examples. Although Riyadh started to tackle the penetration rate via some promotional strategies (e.g., a laptop for e-customers), more effective efforts are required.

Next the assessment of Dimension 1 “organisational governance” reveals, like in other banks, that “customers’ participation in development” is the weakest category with a mark of 4, while the marking of “developers’ collaboration and teams” is seen in a very positive light with a top mark of 1. The remaining four factors are in-between (marking of 2 or 3) with a higher degree of alignment in “flat decision-making structure” and “rewards for ICT-based innovators”, whereas “encouragement to new ways of work” and “assessment appropriate to new banking methods” are given a mark of 3.

The latter may be a reflection of the fact that, at Riyadh, although the IT decision-making process is fundamentally based on strategic criteria (e.g., risk management, business strategy), this has yet to be reflected in a governance that stimulates, for instance, e-risk taking. However, the development of “the national champion” is having a positive alignment effect with “governance”. Now, many groups and divisions have a clearer path to progress as the strategy highlights the new roles of all groups and departments. Inter-organisationally, Riyadh has made modest efforts to establish collaborations with other Saudi banks to create a flexible regulatory framework for e-banking, suggesting a degree of misalignment with the needs of the e-banking constituency.

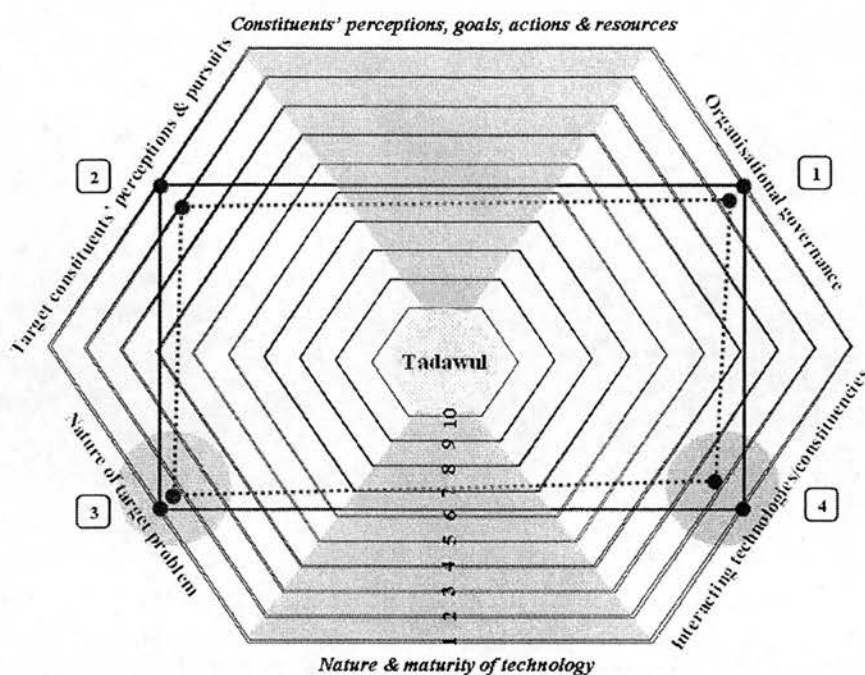
Finally, Dimension (4) “interacting technologies/constituencies” shows the most challenging area, with an average alignment marking of 2.83. Within Dimension (4), the weakest area is “high presence of useful complementary technologies” while the strongest areas are “high presence of required complementary technologies” and “low opposition from competing ICT-based system”. The markings for the remaining three areas are in-between. The lowest average marking given to dimension 4 is largely a reflection of the low performance of the e-banking technological system. Moreover, the limited impact of e-banking products and services in relation to traditional ones and the substantial re-engineering of existing activities to offer new services (e.g., Riyadh Tadawul) also indicate a higher degree of difficulty associated with Dimension 4.

11.2.7 The Saudi Capital Market (Tadawul)

Expanding the discussion toward Tadawul and the implications Tadawul has on the sociotechnical constituency-building process at Saudi banks provides an external view of the emergence and evolution of e-banking at Saudi Arabia. Such a view provides more insights as the Tadawul constituency involves important constituents spread across all Saudi banks.

Figure 11.2.VII presents an evaluation of the current state of the sociotechnical constituency-building process at Tadawul. Clearly, Dimension 3 (i.e. “nature of target problem”) exhibits the best state of alignment with an average mark of 1.67, while the most challenging alignment occurs at Dimension 4

of the “diamond of alignment” (Molina 1995) (i.e. “interacting technologies/constituencies”), with an average mark of 2.17.



Main dimension	Sub-dimension	Mark
Alignment (1-1i) – Organisational governance	• Flat decision-making structure	2
	• Rewards for ICT-based innovators	2
	• Encouragement to new ways of work	2
	• Developers' collaboration and teams	1
	• Assessment appropriate to new banking methods	1
	• Customers' participation in development	3
	<i>Average</i>	1.83
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	1
	• Target customers	3
	• CEO	1
	• Technical personnel	2
	• Administrative personnel	3
	• Executive management	2
	<i>Average</i>	2.00
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	1
	• Very important to the capital market	1
	• Highly motivating to leaders/innovators	2
	• Very important to the capital market' developers and customers	2
	• Well inside space and time resources available	2
	• Well inside financial/material resources available	2
	<i>Average</i>	1.67
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	3
	• Easy with displacement of obsolete practices	2
	• High presence of required complementary technologies	3
	• High presence of useful complementary technologies	2
	• Low opposition from competing ICT-based system	2
	• Effective mechanisms for socialising new mix of technologies	1
	<i>Average</i>	2.17

Figure 11.2.VII Tadawul's "alignment web" as of today (Source: Tadawul's R&D Manager)

For instance, Dimension 4 "interacting technologies/constituencies" shows the most challenging area, with a degree of below significant alignment (i.e. mark 2.17). Within Dimension 4, the weakest

categories are “easy technical integration between new and existing legacy system” and “high presence of required complementary technologies”. This reflects the substantial technical challenge associated with both forcing banks to have their technological systems ready to absorb Tadawul and the fluctuation in launching the Tadawul’s service via banks. The initiatives of migrating REPOs trading from SARIE to Tadawul and linking Tadawul with regional stock exchanges are still facing technical challenges. Such challenges bear witness to a difficult process of alignment with other technologies and constituencies.

In turn, the strongest area at Dimension 4 is “effective mechanisms for socialising new mix of technologies”. The smooth relationship between Tadawul, on the one side, and Reuters, PDA and Mubasher services, on the other sides, to disseminate market information is an example of a strong alignment. Another good example of a strong alignment is the relationship between Tadawul and SARIE to perform the online functions of shares trades clearance (i.e. “t+0” feature) and cash-flow monitor (e.g., anti-money laundering). Such examples bear witness that the category of “effective mechanisms for socialising new mix of technologies” is playing a healthy role.

As noted, the alignment with “nature of target problem” is the strongest with an average mark of 1.67. Inside this dimension the strongest categories are “well inside expertise/capabilities of constituency” and “very important to bank”, with top marks of 1 while the remaining four categories have been marked 2. This reflects some aspects, such as the use of ESIS’s technical experience in Tadawul’s development, the new open technical infrastructure and OMX contract. However, in spite of the high marking, it must be noted that a weak alignment occurred in some aspects, such as meeting the delivery deadline and the bankruptcy of the main software supplier. The challenge of the substantial re-engineering of existing activities (e.g., time and transparency feature) is another example of a problematic area.

Figure 11.2.VII also shows that the constituency’s alignment with Dimension 1 “organisational governance” is given an average marking of 1.83, with the categories of “developers’ collaboration and teams” and “assessment appropriate to new banking methods” as the strongest with top marks of 1, while “customers’ participation in development” takes a relative low mark of 3. The remaining three areas have been equally marked 2.

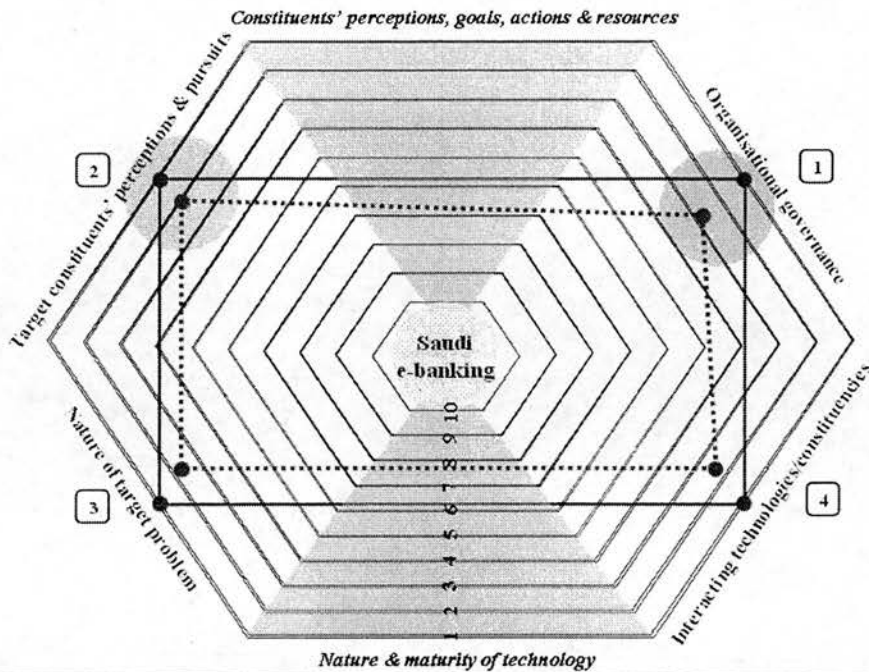
This perception of strong degree of alignment is supported, for instance, by the grouping of all SAMA share market’s departments into Tadawul Department and the direct contact with banks. Joining WFE in 2002 is an external example of strong degree of alignment. Even after the establishment of CMA in 2003, the alignment kept a strong degree. An example is the modified organisational relationships among the capital market entities and the privatisation of the capital market. Rules and regulations issued to restructure the investment regulatory, such as Market Conduct Regulations, are also examples of a strong degree of alignment at the inter-organisational level.

Regarding alignment with dimension “target constituents”, Figure 11.2.VII shows an average mark of 2. On the one hand, the alignment with the areas of “developers” and “CEO” is the strongest. The recent contract with OMX contract supports this marking. On the other hand, the areas of “customers” and “administrative personnel” are the most problematic. Although there has been a sharp increase in investors and investment accounts during the last two years, the current acceptance rate is still under the target figures. Even though Tadawul has offered Tadawul Magazine, new services (e. g., Mubasher, PDA), Tadawul Certificate, such services need more effort at Tadawul. The markings for the remaining two categories, “technical personnel” and “executive management”, are in-between.

Overall, the Tadawul constituency-building process is successfully creating value at the Saudi Capital Market. Its progress is healthy and well aligned with the sector, market and corporate policy of the Saudi investment environment. Nevertheless, the results from the “alignment web” (Molina 2003) assessment identify areas to pay attention to, particularly in those areas marked 3.

11.2.8 Comparative discussion for all case studies

The evaluation of the current state of the sociotechnical constituency-building process at the seven case studies highlights the areas of strengths and weaknesses. It is time now to look at the general image of the sociotechnical constituency-building process at Saudi e-banking. Figure 11.2.VIII places the evaluations of the seven case studies onto a single “alignment web” (Molina 2003).



Main dimension	Sub-dimension	Average Mark
Alignment (1-1i) – Organisational governance	• Flat decision-making structure	2.57
	• Rewards for ICT-based innovators	2.57
	• Encouragement to new didactics	2.57
	• Developers' collaboration and teams	1.86
	• Assessment appropriate to new banking methods	2.29
	• Customers' participation in development	4.00
	<i>Overall average</i>	2.64
Alignment (2-2i) - Target constituents' perceptions and pursuits	• Target developers	1.86
	• Target customers	3.43
	• CEO	1.00
	• Technical personnel	2.14
	• Administrative personnel	2.57
	• Executive management	1.43
	<i>Overall average</i>	2.07
Alignment (3-3i) - Nature of target problem	• Well inside expertise/capabilities of constituency	2.14
	• Very important to bank	1.86
	• Highly motivating to leaders/innovators	2.29
	• Very important to banks' developers and customers	2.43
	• Well inside space and time resources available	2.29
	• Well inside financial/material resources available	2.71
	<i>Overall average</i>	2.29
Alignment (4-4i) - Interacting technologies/constituencies	• Easy technical integration between new and existing legacy system	2.43
	• Easy with displacement of obsolete practices	2.29
	• High presence of required complementary technologies	2.71
	• High presence of useful complementary technologies	2.71
	• Low opposition from competing ICT-based system	2.43
	• Effective mechanisms for socialising new mix of technologies	2.86
	<i>Overall average</i>	2.57

Figure 11.2.VIII Saudi e-banking's "alignment web" as of today

For instance, Figure 11.2.VIII shows that alignment with “target constituents” is the best state of alignment, with a significant degree of alignment (i.e. average 2.07). Areas inside can be divided according to their average marking into four groups. The first group includes areas with a strong degree of alignment. It involves “CEO” as the strongest constituent, with an average marking of 1. This reflects the fact that “CEO” is firmly supportive of the constituency, that is, a “constituent” rather than a “target constituent”.

The second group includes areas with a strong-to-significant degree of alignment. It involves “executive management” and “target developers”, with an average marking of 1.43 and 1.86, respectively. The third group includes areas with a significant-to-insignificant degree of alignment. It involves “technical personnel” and “administrative personnel”, with an average marking of 2.14 and 2.57, respectively. The most problematic group is group four. It includes area with an insignificant-to-weak degree of alignment that involves “target customers”, with an average marking of 3.43.

Alignment with “target constituents” is followed by that with “nature of target problem” (i.e. Dimension 3). Figure 11.2.VIII shows that the constituency’s alignment with the “nature of target problem” is given an average marking of 2.29. Areas inside can be divided according to its average marking into two groups. The first group includes areas with a strong-to-significant degree of alignment. It involves “very important to bank”, with an average marking of 1.86. The second group includes areas with a significant-to-insignificant degree of alignment. It involves all of the remaining five areas, with “well inside financial/material resources available” being the lowest mark of 2.71.

Alignment with “nature of target problem” is followed by that with “interacting technologies/constituencies” (i.e. Dimension 4). Figure 11.2.VIII shows that the constituency’s alignment with the “interacting technologies/constituencies” is given an average marking of 2.57. All of the areas inside fall into the significant-to-insignificant degree of alignment, with “easy with displacement of obsolete practices” being the highest (i.e. average 2.29) and “effective mechanisms for socialising new mix of technologies” being the lowest (i.e. average 2.86). This indicates that the process of sociotechnical constituency-building faces a challenge in aligning its capabilities with the target functionality and cost in both the market and banking sector. Such a challenge opposes the technical capacity of the e-banking constituency to deliver within the available resources and in competitive time.

Finally, Figure 11.2.VIII clearly reveals that the lowest degree of alignment is credited to Dimension 1 of the “diamond of alignment” (Molina 1995) (i.e. “governance”), with an average alignment mark of 2.64 (i.e. insignificant-weak). Areas inside can be divided according to its average marking into three groups. The first group includes areas with a strong-to-significant degree of alignment. It involves “developers’ collaboration and teams”, with an average marking of 1.86.

The second group includes areas with a significant-to-insignificant degree of alignment. It involves “assessment appropriate to new banking methods”, “flat decision-making structure”, “rewards for ICT-based innovators” and “encouragement to new didactics”, with an average marking of 2.29, 2.57, 2.57 and 2.57, respectively. The most problematic group is group three. It includes areas with a weak degree of alignment. It involves “customers’ participation in development”, with an average marking of 4. This fact together with that from Dimension 2 stresses the need for customers’ involvement in e-banking development.

In conclusion, the assessment of the e-banking constituency-building process at Saudi e-banking through the lens of the “alignment web” (Molina 2003) has highlighted areas of strengths and weaknesses in the process of sociotechnical alignment. It suggests that the Saudi e-banking’ constituency-building process is evolving with mixed roles played by all dimensions of the “diamond of alignment” (Molina 1995) and shaped the existing constituency. While Dimension 2 (i.e. “target constituents”) exhibits the best state of alignment with an average mark of 2.07, Dimension 1 (i.e. “governance”) shows the most challenging alignment with an average mark of 2.64. This assessment may be used to inform the future alignment strategy pursued by each Saudi e-banking constituency.

11.3 Dynamic strategy mapping in e-banking sociotechnical constituencies

The aim of this section is to deepen the degree of detail in the assessment and understanding of the value creation strategies pursued by the various Saudi e-banking constituencies. It makes use of the “dynamic strategy mapping” (DSM) (Molina 2005) already introduced in Chapter 2, with two limitations due to available information (1) the “dynamic strategy mapping” (DSM) (Molina 2005) is applied to three case studies only – AlAhli, Riyadh and Tadawul; and (2) it is applied to the current phase of development only.

As stated at the beginning of this chapter, the application of the “dynamic strategy mapping” (DSM) (Molina 2005) is important because broad value-creation strategies, such as Porter’s generic and positioning strategies (Porter 1985; 1996), may be pursued by combining in many alternative ways the many detailed ingredients having an incidence in the generation of broad strategies. The “dynamic strategy mapping” (DSM) (Molina 2005) helps to unpack the priorities given at the different ingredients and this helps clarify, for instance, why two constituencies that may be classified as following “cost leadership” or “differentiation” strategies in the same market may show different results.

11.3.1 National Commercial Bank (AlAhli)

Figure 11.3.I identifies the priorities (marked with percentages) given to the different strategic dimensions of the first layer of the “dynamic strategy mapping” (DSM) (Molina 2005) for AlAhli’s e-banking innovation process.

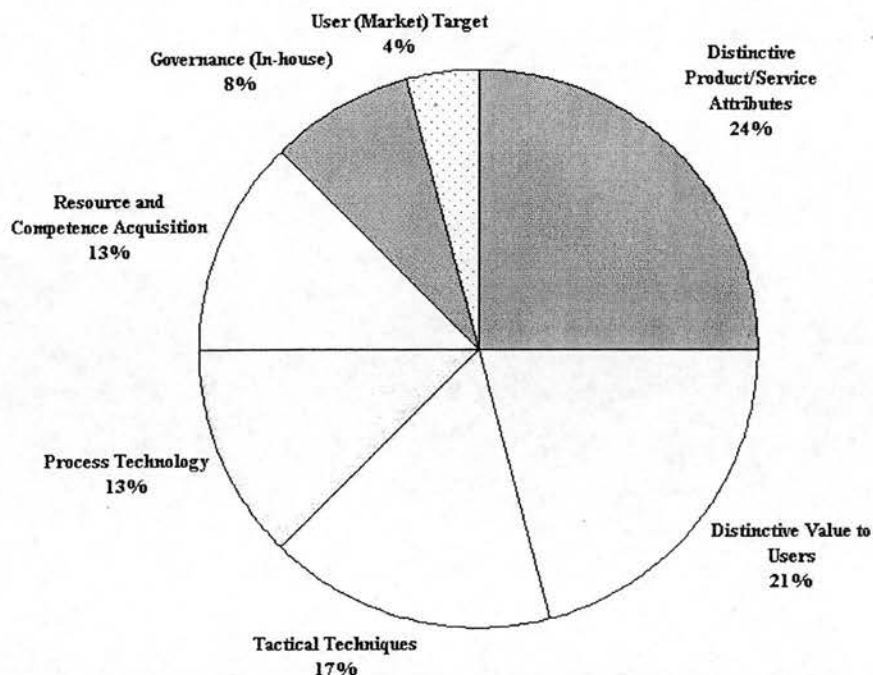


Figure 11.3.I Priorities given to dimensions constituting the first layer of AlAhli's "dynamic strategy mapping" (DSM) (Source: AlAhli's e-Banking Head)

The assessment of current priorities identifies the dimension of "distinctive product/service attributes" as the overall most important with a mark of 24%. This means that AlAhli focuses primarily on features that give the bank competitive advantage to its e-banking products and services. Moving deeper into the specific features of the dimension "distinctive product/service attributes", the assessment finds that the "quality" feature receives the highest priority, followed by "bundle", while the "physical characteristics" feature (e.g., size, weight) is the least important, something to be expected for products that are largely intangible in nature. The remaining features are in-between, with the evolutionary aspect of e-banking products and services, being the next feature after "bundle".

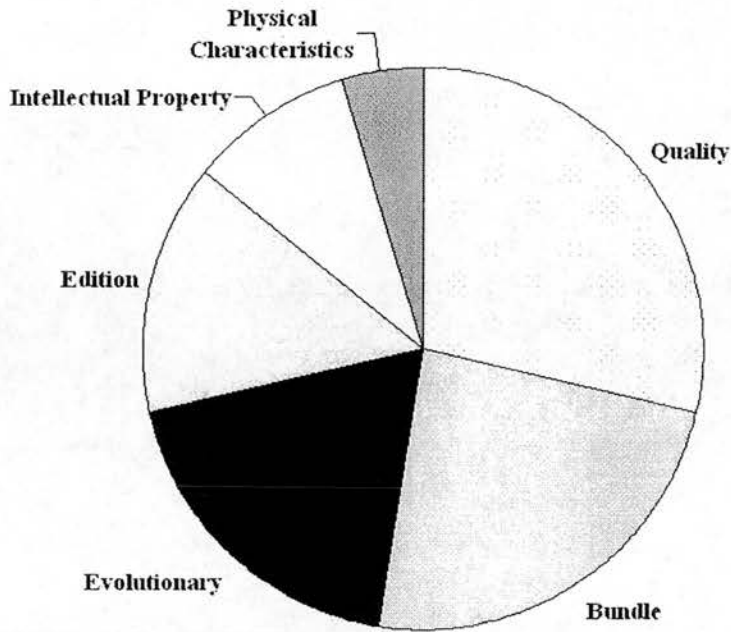


Figure 11.3.II Priorities of features within the “distinctive product/service attributes” of AlAhli’s “dynamic strategy mapping” (DSM)

The second most important overall dimension at AlAhli is the “distinctive value to users”, with a mark of 21%. Indeed, during the e-banking development process, AlAhli clearly focuses on finding e-banking features that can add distinctive value to customers. At the deeper layer of detail, three features are identified as receiving similar priority: “functionality”, “performance” and “availability”. In turn, the “price” feature has been identified as a less important feature from the point of view of adding distinctive value to AlAhli’s customers.

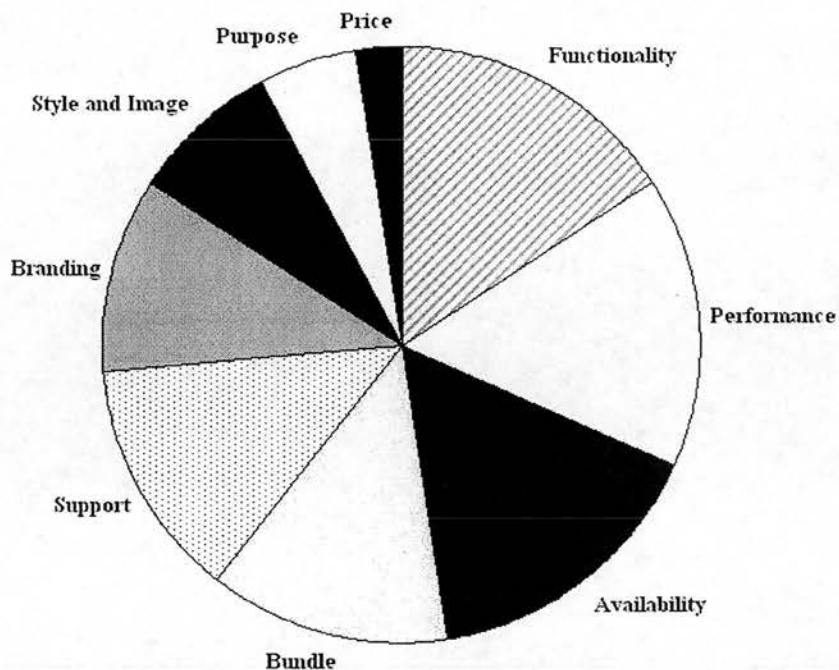


Figure 11.3.III Priorities of features within the “distinctive value to users” of AlAhli's “dynamic strategy mapping” (DSM)

Next, Figure 11.3.IV identifies the dimension of “tactical techniques” as the third most important with a mark of 17%. Tactical approaches are important to ensure the successful diffusion of e-banking products and services among customers. At AlAhli, such techniques can be clustered into two groups. The first group is the most important and includes “product”, “alliances”, “diversification”, “launches” and “defensive entry-barriers”. The case of initiating the bill payment gateway with utilities companies after losing the STCs contract is an example. The second group of tactical techniques is given less importance and includes “market development”, “physical/virtual”, “penetration” and “tactical pricing”.

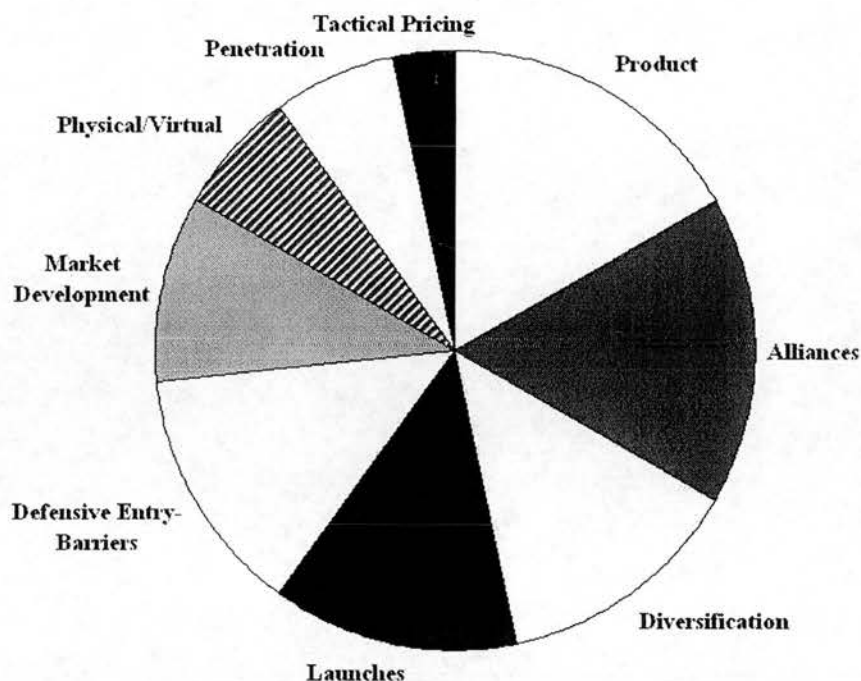


Figure 11.3.IV Priorities of features within the “tactical techniques” of AlAhli's “dynamic strategy mapping” (DSM)

Two overall dimensions are next in order of marking, both with 13%. These are “resource and competence acquisition” and “process technology”. The former reveals the preferred approaches followed by AlAhli's e-banking constituency to acquire resources and capabilities for the e-banking development process. It is apparent that the “loans” and “donations” approaches do not exist at AlAhli's “dynamic strategy mapping” (DSM) (Molina 2005) as the bank is not an organisation that would accept loans and donations. The approaches of “investments”, “off-the-shelf” and “in-house development” are given the lowest priorities, while “outsourcing” and “training” receive the highest priority, followed not far behind by “partnership” and “licensing”. An example is the acquisition of many of SAMA's technical staff to handle development process at the Operations & Technology Group.

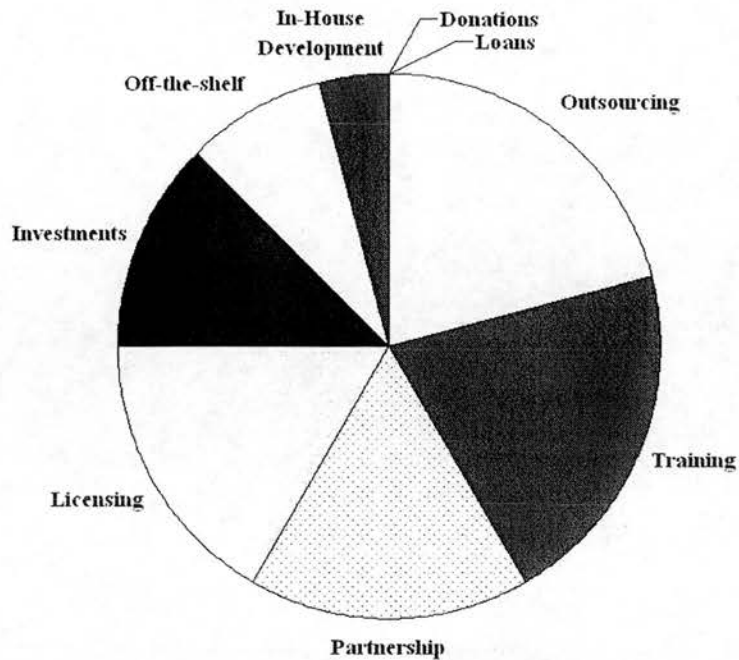


Figure 11.3.V Priorities of features within the “resource and competence acquisition” of AlAhli’s “dynamic strategy mapping” (DSM)

“Process technology” focuses on the technology used during the e-banking development process. Selecting only the most important factor, the assessment finds that “competitive character”, “techniques”, “intellectual property” and “cost” are the factors that AlAhli gives highest priority to in choosing the appropriate mix of e-banking development technologies.

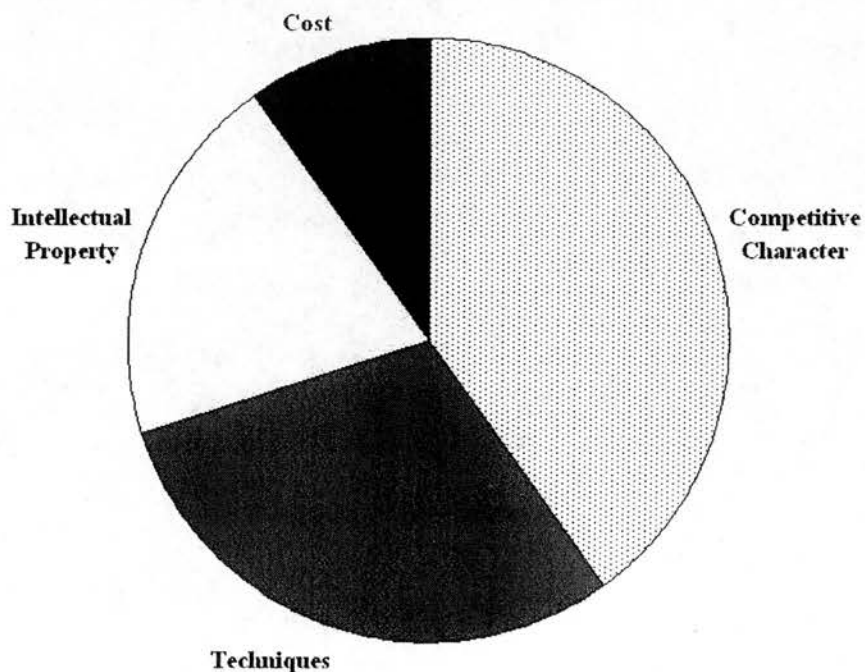


Figure 11.3.VI Priorities of features within the “process technology” of AlAhli’s “dynamic strategy mapping” (DSM)

The “governance (in-house)” dimension (Figure 11.3.VII) has been placed sixth in the “dynamic strategy mapping” (DSM) (Molina 2005) sequence of overall priorities with a mark of 8%. Written and unwritten “rules” governing the behaviour and practices of AlAhli’s staff, sections, departments and groups in the e-banking development process receive low priority within AlAhli’s “dynamic strategy mapping” (DSM). Inside “governance (in-house)”, “competitive attitude”, in particular the “defensive” one has been identified as the most important dimension. This is followed by “organisation” (with the absence of both “hierarchical” and “hollow” organisations), “reward system” and “focusing drivers”.

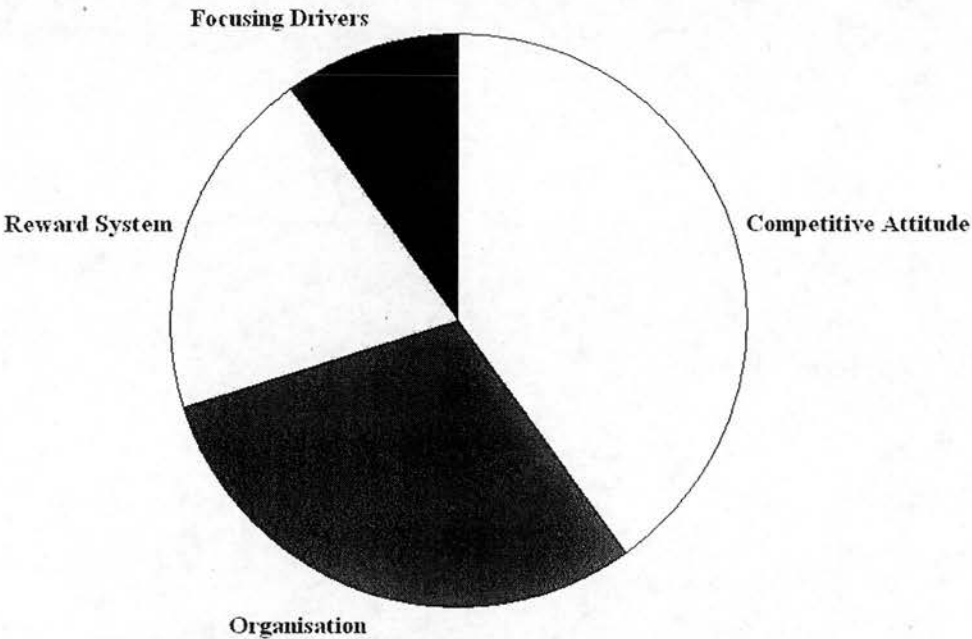


Figure 11.3.VII Priorities of features within the “governance (in-house)” of AlAhli’s “dynamic strategy mapping” (DSM)

At the overall “dynamic strategy mapping” (DSM)’s first layer, the least important dimension at AlAhli is “user (market) target”, with a priority of 4%. This is explained by the fact that, although expanding the customer base is an important area, AlAhli focuses more on the present base rather than the prospective one. Surprisingly, the “geography” dimension is not accorded any importance in AlAhli’s “dynamic strategy mapping” (DSM), although AlAhli holds over 20% of the sector’s branches. Likewise, “education”, “age”, and “behaviour” are not considered important. In turn, “offensive entry-barriers”, in particular “flank attack”, “current status” and “characteristic” have been identified as the most important dimensions. These are followed by both “ambition” and “income”.

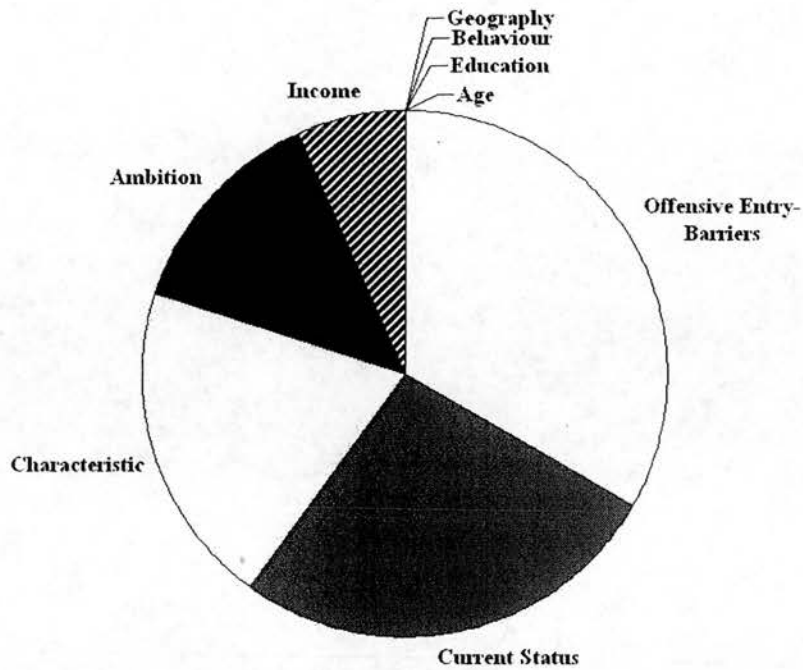


Figure 11.3.VIII Priorities of features within the "user (market) target" of AlAhli's "dynamic strategy mapping" (DSM)

11.3.2 Riyadh Bank (Riyad)

The second "dynamic strategy mapping" (DSM) (Molina 2005) to discuss is that of Riyadh. Unlike AlAhli's "dynamic strategy mapping" (DSM), Riyadh's "dynamic strategy mapping" (DSM) shows that this e-banking constituency is paying more attention to governance issues of strategy. Figure 11.3.IX identifies priorities for the dimensions of the first layer of the "dynamic strategy mapping" (DSM) (Molina 2005). These priorities are associated with the progress of Riyadh's e-banking constituency-building process (see Figure 11.2.VI).

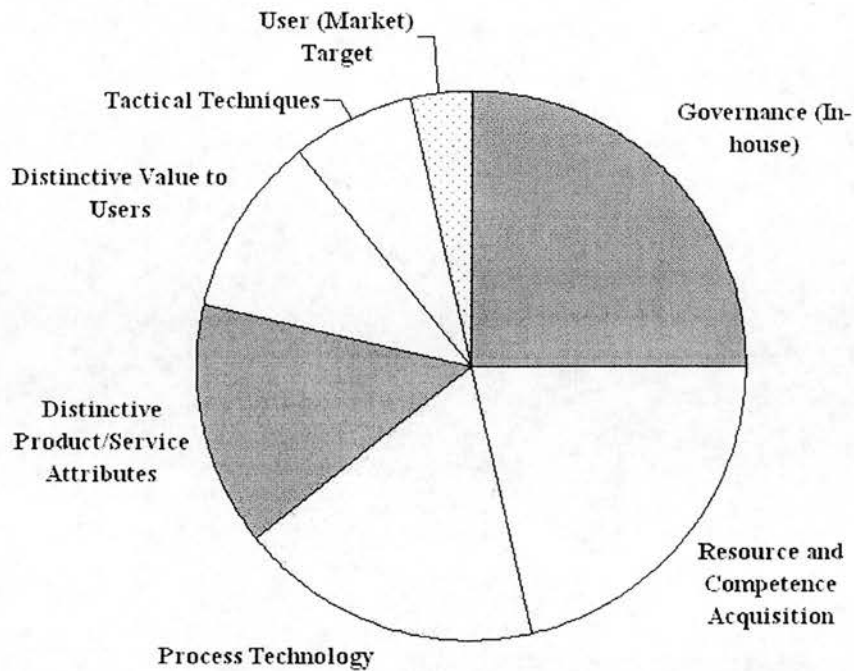


Figure 11.3.IX Priorities of the dimensions constituting the first layer of Riyadh's "dynamic strategy mapping" (DSM) (Source: Riyadh's Remote Delivery Channels Manager)

While the AlAhli's "dynamic strategy mapping" (DSM) placed governance well down the strategic priorities (6th place), at Riyadh the "governance (in-house)" dimension has been identified as the top in importance. The first possible explanation for this finding is the fact that the government exercises direct supervision of Riyadh's operations and this has lasted for decades. Although the direct supervision was concluded in the mid-1990s, its influence still persists at Riyadh as shown by the "dynamic strategy mapping" (DSM). This strategic concern is also confirmed by the top marking given inside governance to the sub-dimension "organisation", and even deeper in the detail to the sub-sub-dimension "autocratic-hierarchical" inside organisation. The second possible explanation behind the top priority given "governance (in-house)" dimension is the development of the "national champion" as well as the e-Channels Quality Unit. These changes imply governance in a state of flux.

Following "governance", Figure 11.3.X shows "reward system" as the sub-dimension receiving the lowest priority at Riyadh's "dynamic strategy mapping" (DSM), while inside this sub-dimension "vision and leadership" receives the highest importance. The governance sub-dimensions of "focusing drivers" and "competitive attitude" are given similar high priority, with their respective deeper-layer sub-categories of "cost" driver and "offensive" attitude identified as the most important.

The differences in the degree of priority shown by AlAhli's and Riyadh's "dynamic strategy mapping" (DSM) regarding "competitive attitude" (inside "governance (in-house)" dimension) raises questions about the way banks pursue e-banking competition. Thus, Yakhlef (2001) found that banks are using the Internet to achieve two main purposes. The "followers" seem to be adopting a "defensive" strategy, using the Internet as a means to improve interactivity with their customers, offering them the

opportunity to carry out transactions, personalise their offerings, etc. The “first-movers” seem to be adopting an “offensive” strategy, taking the Internet more innovatively as a device for redefining their core business and transforming it altogether. Similar conclusions have been found by Willcocks and Plant (2001) and Bensebaa (2004). The point that can be made here is that AlAhli implements an “offensive” strategy, while Riyadh implements a “follower” strategy.

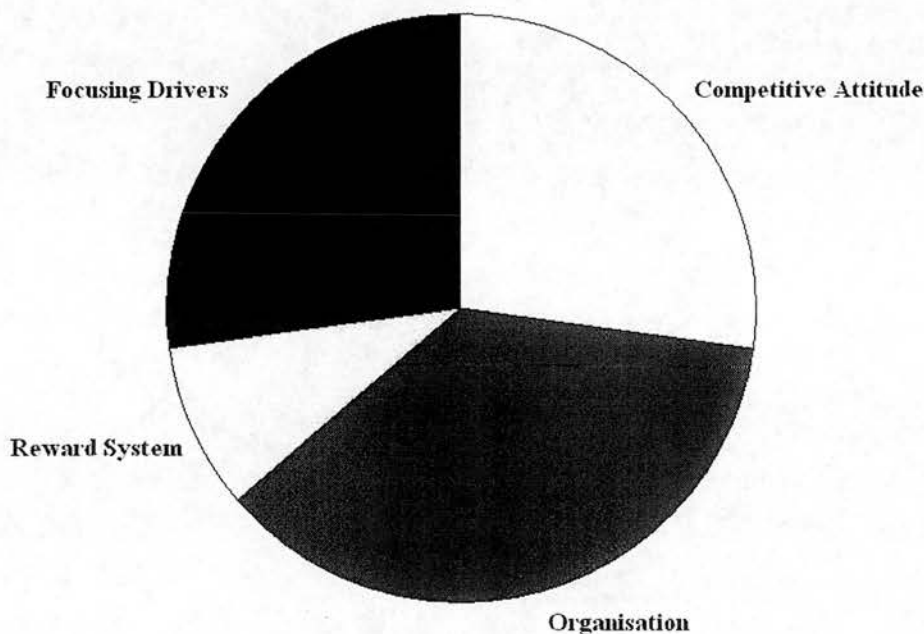


Figure 11.3.X Priorities of features within the “governance (in-house)” of Riyadh’s “dynamic strategy mapping” (DSM)

Unlike at AlAhli’s, at Riyadh’s the second most important dimension at the first layer of the “dynamic strategy mapping” (DSM) is “resource and competence acquisition”. This dimension focuses on approaches followed by Riyadh’s e-banking constituency to acquire resources and capabilities for the e-banking development process. Inside this dimension, Figure 11.3.XI shows that, as for the case of AlAhli, the “loans” and “donations” approaches do not exist at Riyadh’s “dynamic strategy mapping” (DSM). However, unlike AlAhli, Riyadh’s DSM has excluded the “investments” approach. Three mechanisms have been identified as the most important for acquiring resources and capabilities: “total outsourcing”, “partnership” and “unlimited licensing”. These are followed by lower priorities of “training”, “off-the-shelf” and “in-house development”. The large difference of priority given to “total outsourcing”, as the most important approach, and “in-house development”, as the least important approach, raises a concern regarding Riyadh’s own acquisition capabilities in the future.

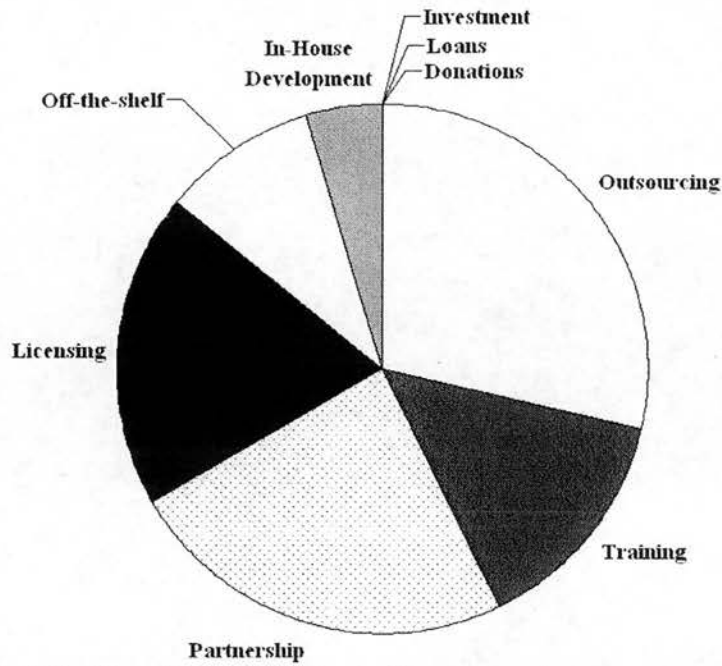


Figure 11.3.XI Priorities of features within the “resource and competence acquisition” of Riyadh’s “dynamic strategy mapping” (DSM)

The third dimension by order of importance at Riyadh’s DSM is “process technology”, focusing on the technology used during the e-banking development process. Here the key priority factors that Riyadh considers in choosing the appropriate mix of e-banking development technologies are, first and foremost, “cost”, followed in importance by “strategic or pacing competitive character”, “communication techniques” and “proprietary intellectual property”. In addition, within the sub-dimension “intellectual property”, the options of “free and open” do not exist at Riyadh’s “dynamic strategy mapping” (DSM). In other words, technologies, such as free and open source software, are of no consequence for the bank.

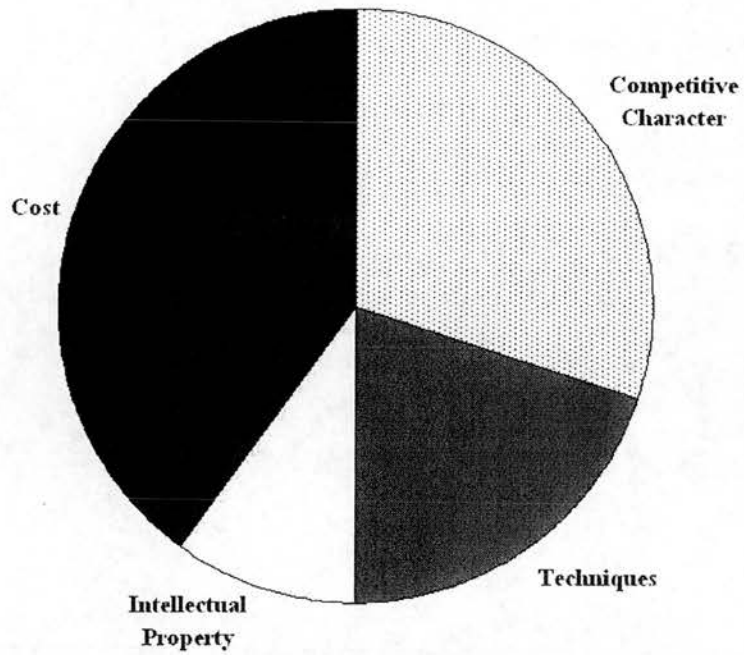


Figure 11.3.XII X Priorities of features within the “process technology” of Riyadh’s “dynamic strategy mapping” (DSM)

The strategic dimension of “distinctive product/service attributes” has been identified as fourth in importance at Riyadh, in contrast to AlAhli where it came first. As Figure 11.3.XIII shows, the most important attributes that Riyadh focuses on to add value to its e-banking product/services are first “bundle”, then “commodity edition” and third “quality”. In turn, “continuous improvement evolutionary”, “intellectual property” and “physical characteristics” have been identified as less important attributes.

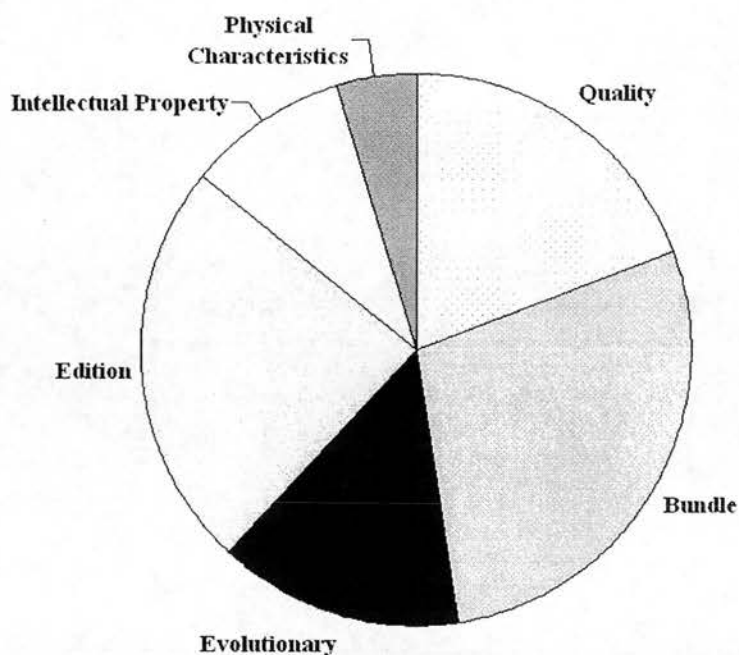


Figure 11.3.XIII Priorities of features within the “distinctive product/service attributes” of Riyadh’s “dynamic strategy mapping” (DSM)

Fifth in importance at Riyadh’s DSM is the dimension “distinctive value to users” (this was second at AlAhli), that is, e-banking features that can add distinctive value to customers. At a deeper layer, the various strategic ingredients in this dimension can be arranged into three groups, starting with those ingredients that received the highest importance: “average price”, “related bundle” and “unique functionality”. The second group with middle-of-the-way markings is constituted by “performance”, “availability” and “multi purpose”, whereas the group with the lowest marking is made up of “support”, “branding” and “style and image”.

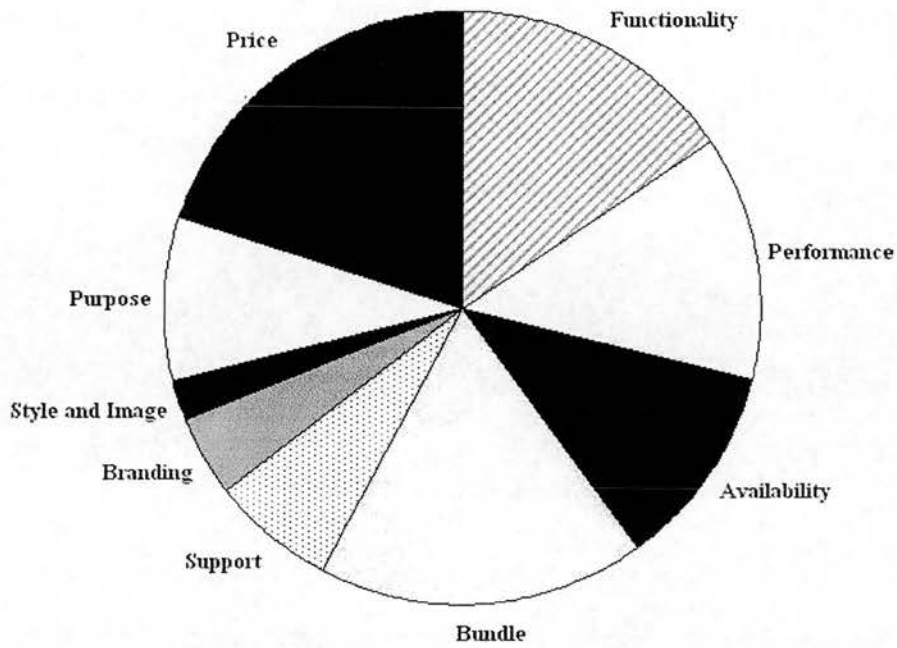


Figure 11.3.XIV Priorities of features within the “distinctive value to users” of Riyad’s “dynamic strategy mapping” (DSM)

Next, sixth in priority is the “dynamic strategy mapping” (DSM) dimension “tactical techniques”, with the mixes of tactical market approaches used by the bank for diffusion of its e-banking products and services among customers. Here, an equal priority has been accorded to the sub-dimensions “defensive entry-barriers” (particularly its “reinforce lock-in” expression), “product” and “penetration” techniques. These are followed in importance by “market development”, “related diversification” and “opportunistic tactical pricing”. “Single launch”, “price fixing alliance” and “phyrtual” techniques are of low important at Riyad’s “dynamic strategy mapping” (DSM).

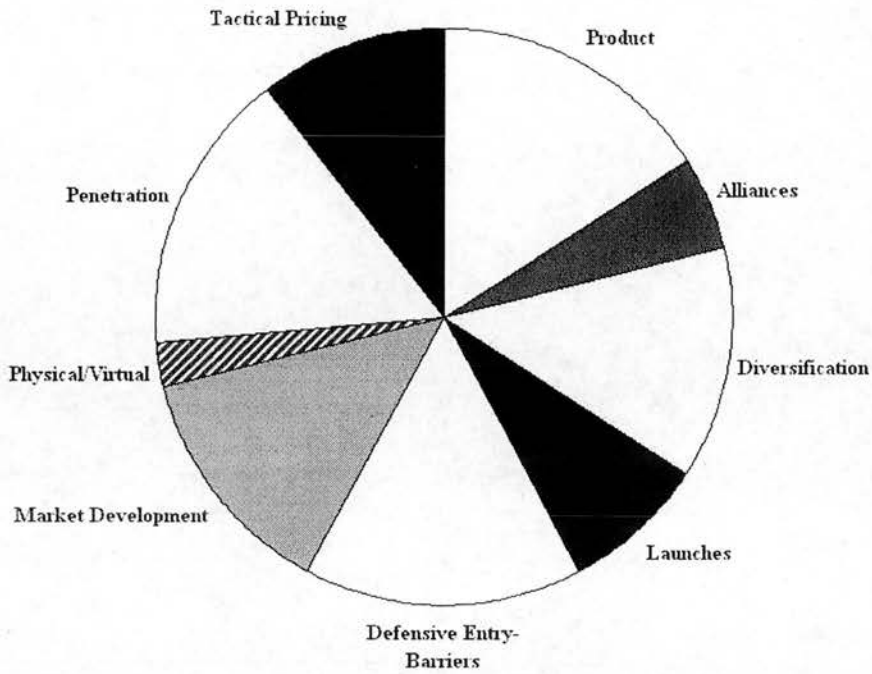


Figure 11.3.XV Priorities of features within the “tactical techniques” of Riyadh’s “dynamic strategy mapping” (DSM)

As AlAhli’s DSM does, Riyadh’s DSM also prioritises “user (market) target” as the least important strategic dimension. Riyadh focuses more on the present customer base rather than on a prospective one, although expanding the customer base is an important area. The sub-dimensions of “education” “age” and “behaviour” are not given any importance at Riyadh’s “dynamic strategy mapping” (DSM). In turn, the ingredients “current status”, “offensive entry-barriers” and “local geography” have been identified as the most important dimensions. These are followed by “mass broad characteristic”, “among leaders’ ambition” and “average income”.

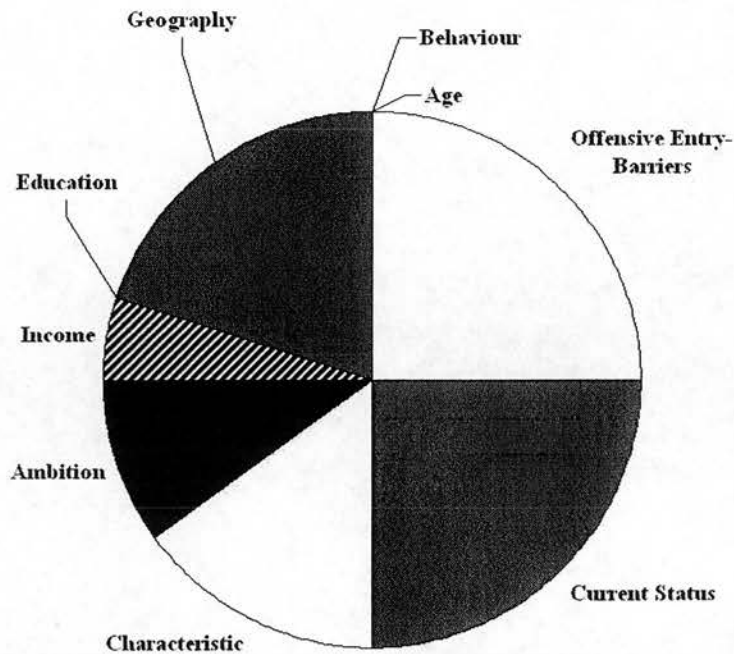


Figure 11.3.XVI Priorities of features within the “user (market) target” of Riyadh’s “dynamic strategy mapping” (DSM)

11.3.3 The Saudi Capital Market (Tadawul)

The third “dynamic strategy mapping” (DSM) (Molina 2005) to discuss is that of Tadawul. It is obvious from Figure 11.3.XVII that the shape of Tadawul’s “dynamic strategy mapping” (DSM) is different from that of both AlAhli and Riyad. To an important extent, this is because of the different organisational nature of Tadawul, as a capital market, and the banks AlAhli and Riyad. Such nature implies a difference in the competition status of the banks’ constituencies and the Tadawul’s constituency. The competition status of AlAhli and Riyad is much more open than that of the Tadawul’s constituency as Saudi banks compete against each other⁷⁶, while Tadawul is the sole operator of the share market. As indicated earlier by the Tadawul’s MD, “Tadawul has no competition but still pushes to improve the services to encourage investing in the share market”. Consequently, it is expected that in many respects Tadawul’s “dynamic strategy mapping” (DSM) will be different from that of AlAhli and Riyad. In effect, Tadawul’s “dynamic strategy mapping” (DSM) has different priorities regarding strategic dimensions than those of AlAhli and Riyad. Figure 11.3.XVII identifies the priorities given to the dimensions of the first layer of the “dynamic strategy mapping” (DSM) at Tadawul.

⁷⁶ The fact that SAMA pursues a collaborative rather than a competitive approach among Saudi banks to the development of a common payments infrastructure (Al-Suhaimi 1998) does not mean extending such approach to the other functions such as operations, logistics, marketing, etc. The case of AlRajhi acquiring the e-Banking Analyst of AlAhli to pioneer the STC’s bill payment gateway in the sector bears witness to this point.

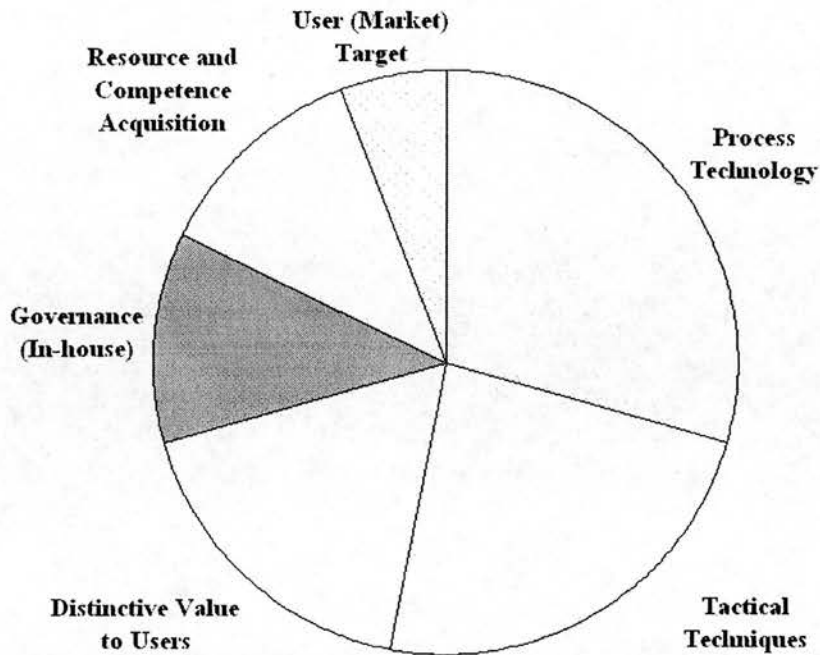


Figure 11.3.XVII Priorities of the dimensions constituting the first layer of Tadawul's "dynamic strategy mapping" (DSM) (Source: Tadawul R&D Manager)

A major immediate difference shown by Figure 11.3.XVII is that the dimension "distinctive product/service attributes" is excluded from Tadawul's "dynamic strategy mapping" (DSM). In turn, the most important dimension at Tadawul's "dynamic strategy mapping" (DSM) is "process technology", but, interestingly, inside this dimension there is no sub-dimension "competitive character" since Tadawul has no competition. The most important sub-dimensions inside "process technology" are "collective learning", "knowledge management" and "brainstorming" techniques. Both "intellectual property" (in particular "proprietary") and "cost" (in particular "higher") follow behind.

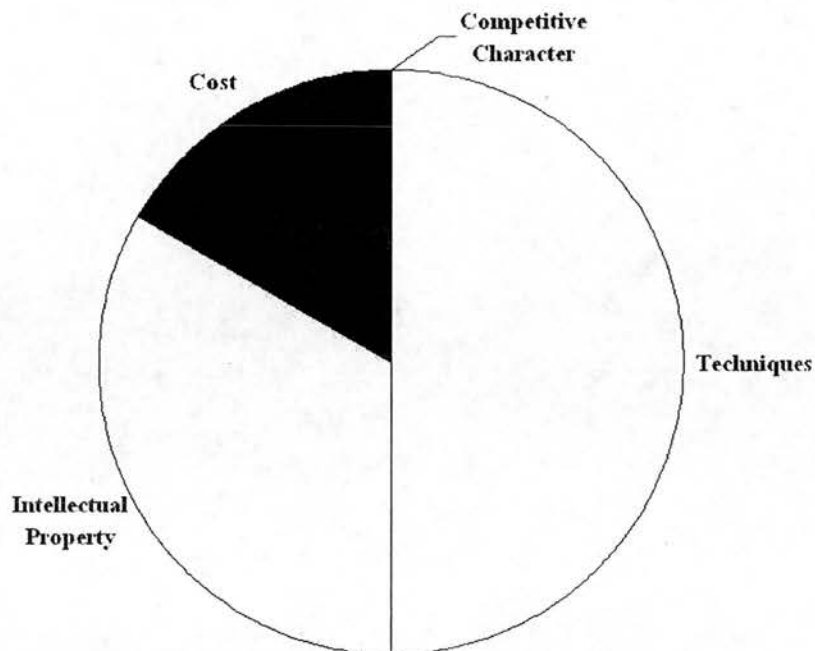


Figure 11.3.XVIII Priorities of features within the “process technology” of Tadawul’s “dynamic strategy mapping” (DSM)

The second most important strategic dimension at Tadawul’s “dynamic strategy mapping” (DSM) is “tactical techniques”, something that reflects the fact that Tadawul seeks to encourage investment in the capital market. At the same time, the fact that Tadawul faces no competition implies the exclusion of many tactical techniques from Tadawul’s “dynamic strategy mapping” (DSM), including “market development”, “diversification”, “alliances”, “tactical pricing” and “defensive entry-barriers”. Instead, “penetration”, “product”, “frequent major launches” and “phyrtual” are the most important techniques.

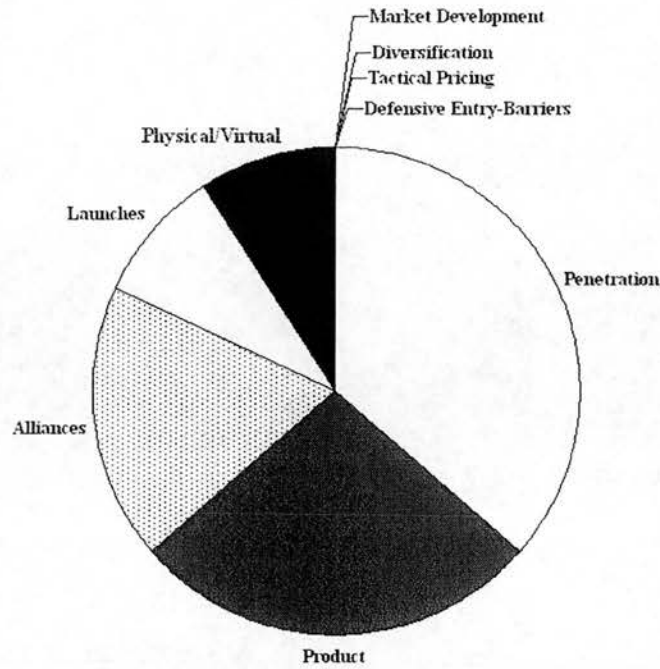


Figure 11.3.XIX Priorities of features within the “tactical techniques” of Tadawul’s “dynamic strategy mapping” (DSM)

The third strategic priority shown by Tadawul’s “dynamic strategy mapping” (DSM) is “distinctive value to users”, that is, finding electronic trading and investment features that can add distinctive value to traders and investors. Again, the fact that Tadawul has no competition implies the exclusion of a number of options: “branding”, “price”, “style and image” and “purpose”. In contrast, “multiple functionality”, “availability” and “performance” are, in the same order, identified as the most important sub-dimensions. These are followed by both “support” and “related bundle”.

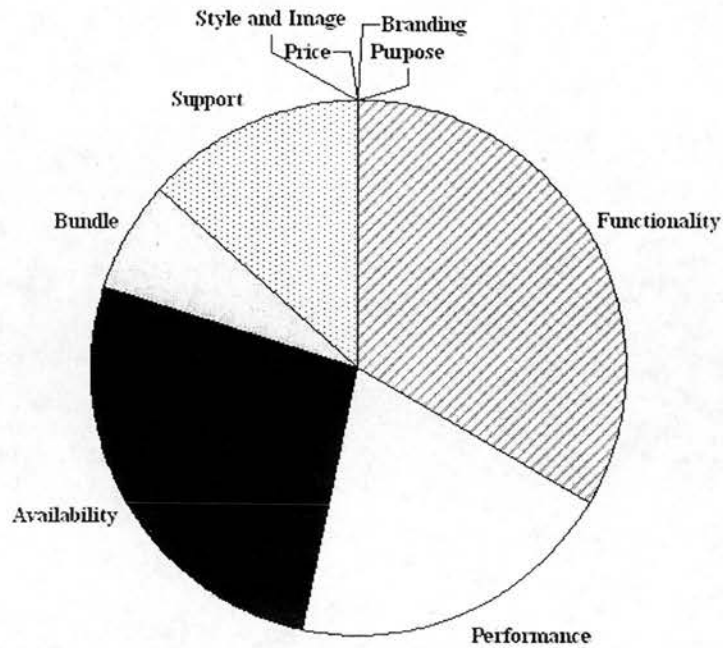


Figure 11.3.XX Priorities of features within the “distinctive value to users” of Tadawul’s “dynamic strategy mapping” (DSM)

Rather surprisingly, “resource and competence acquisition” has been identified as the fourth most important dimension. An explanation for such a finding is that Tadawul has the ability to acquire resources (e.g., human resources) from SAMA or any other capital market players, such as banks. Such ability helps Tadawul to focus more on other dimensions than “resource and competence acquisition”. Within this dimension, however, “total outsourcing” (e.g., OMX), “long-term contracts partnership” (e.g., CMA), and training (e.g., Tadawul Certificate) have been identified as the most important sub-dimensions. These are followed by “unlimited licensing”, “in-house development” and “off-the-shelf”. Like ALAhli’s and Riyad’s “dynamic strategy mapping” (DSM), “loans”, “donations” and “investments” approaches do not exist at Tadawul’s “dynamic strategy mapping” (DSM).

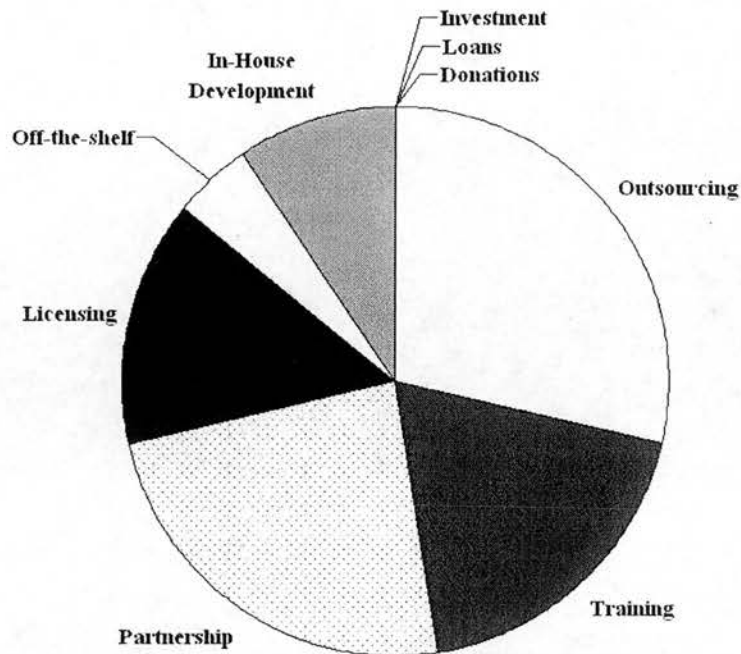


Figure 11.3.XXI Priorities of features within the “resource and competence acquisition” of Tadawul’s “dynamic strategy mapping” (DSM)

The “governance (in-house)” dimension is fifth in importance at Tadawul’s “dynamic strategy mapping” (DSM). Again, “competitive attitude” has been excluded due to Tadawul’s lack of competition. On the other hand, the fact that Tadawul is going to be privatised in the near future is certainly behind the selection of the sub-dimension “organisation” as the most important within the “governance (in-house)” dimension, with “heterarchical organisation” being the most important and both “hierarchical” and “hollow” organisations given no consideration. Inside “governance”, the ingredient of “organisation” is followed in importance by “focusing drivers” (in particular in its expressions of “product driven”, “long-term time scope” and “user driven”). The least important sub-dimension of “governance” is “reward system”, which shows “vision and leadership” and “achievement and productivity” as most important.

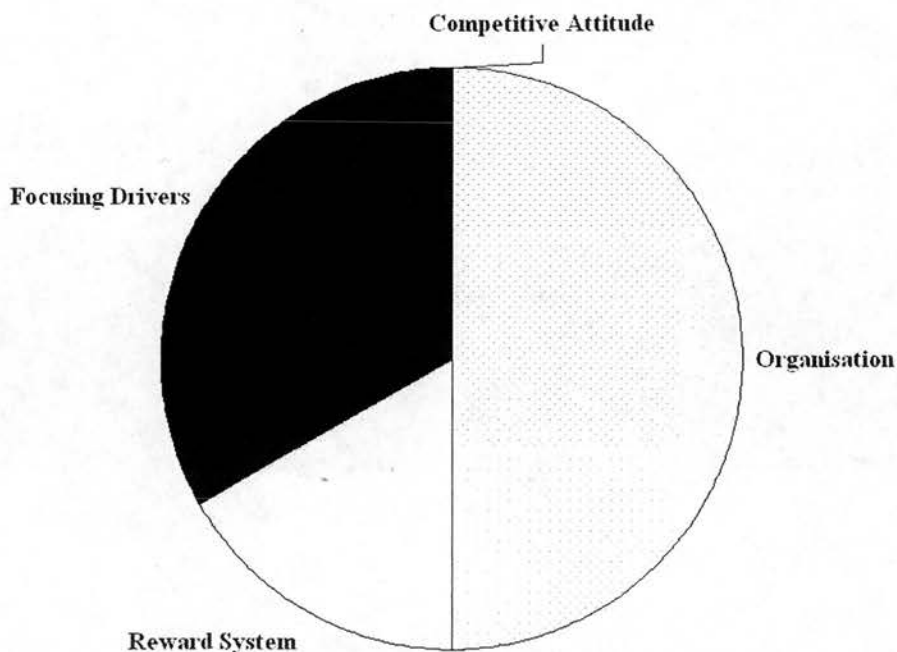


Figure 11.3.XXII Priorities of features within the “governance (in-house)” of Tadawul’s “dynamic strategy mapping” (DSM)

In common with AlAhli’s and Riyad’s “dynamic strategy mapping” (DSM), Tadawul’s “dynamic strategy mapping” (DSM) has also prioritised “user (market) target” as the least important strategic dimension. An interesting issue is that while Tadawul “pushes to improve the services to encourage investing in the capital market” (Tadawul MD), it focuses more on present traders and investors rather than on prospective ones (similar to the approach of AlAhli and Riyad with respect to their user strategy).

An explanation for this issue is that CMA encourages financial intermediaries to become connectors between traders and investors, on one hand, and Tadawul, on the other hand. Consequently, Tadawul pays more attention to those customers directly related to Tadawul (e.g., financial intermediaries) rather than to those indirectly related (e.g., traders and investors). Within this dimension, the priority sub-dimensions are first “characteristic”, then “current status”, “ambition” and “geography”.

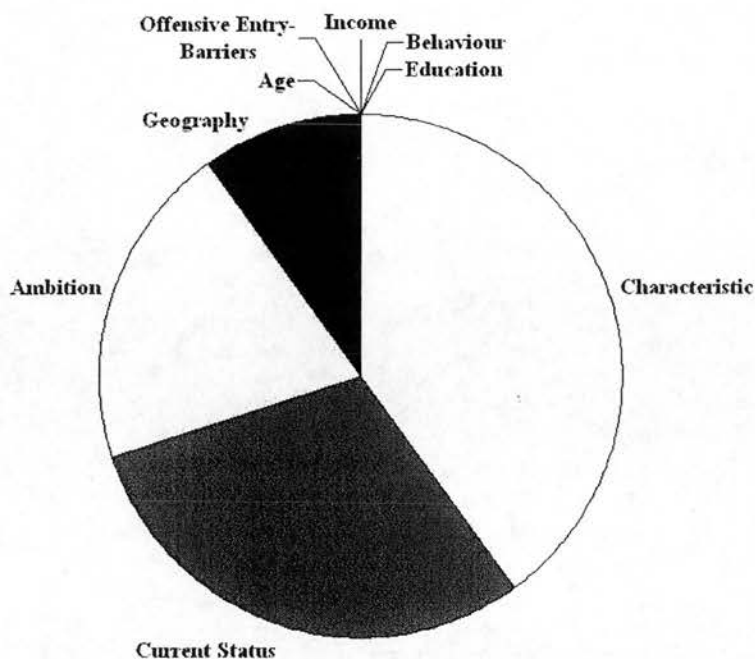


Figure 11.3.XXIII Priorities of features within the “user (market) target” of Tadawul’s “dynamic strategy mapping” (DSM)

Application of the “dynamic strategy mapping” (DSM) (Molina 2005) to the cases of AlAhli, Riyadh and Tadawul shows that each sociotechnical constituency has its own combination of strategic ingredients. The “dynamic strategy mapping” (DSM) (Molina 2005) now allows for a deeper characterisation of these broad strategies.

Thus, the AlAhli’s constituency focuses more on features that give competitive advantage to its e-banking products and services. AlAhli’s performance in both financial and technological terms is healthy and is likely to remain so for the foreseeable future. In turn, Riyadh’s top strategic priority was identified as the “governance (in-house)” dimension. Riyadh’s performance is not as healthy as that of AlAhli as shown by the average markings in most dimensions of the “diamond of alignment” (Molina 1995). Riyadh’s average markings were behind those of AlAhli in all alignment dimensions with the exception of Dimension 3 (i.e. “nature of target problem”).

For this reason, it seems advisable for Riyadh to make a critical examination of its combined value creation strategies. In this respect, one should take into account that the achievements of the Riyadh’s “national champion” may go a long way in helping to improve Riyadh’s overall performance. Finally, the Tadawul’s constituency regards “process technology” as the most important feature while it entirely excludes the strategic importance of “distinctive product/service attributes”. Tadawul is a

capital market and not a bank like AlAhli and Riyad. This different organisational nature explains much of the unique mix of Tadawul's value-creation strategy.

11.4 Conclusion

This chapter compared and contrasted the emergence and evolution of e-banking among the seven case studies discussed earlier. It focused on the main questions of this thesis: (1) how do banks implement e-banking to build their capabilities as well as to create new value strategies? (2) How have e-banking capabilities been built? (3) What role has e-banking played in shaping the strategic direction of banks?

The discussion made use of tools associated to the "sociotechnical constituencies" approach (Molina 1990; 1993) namely, the "alignment web" (Molina 2003) and "dynamic strategy mapping" (DSM) (Molina 2005) of e-banking constituency-building processes. The integral use of the tools produced a detailed (quantitative) assessment of the current state of the process of sociotechnical alignment for each of the e-banking constituencies ("alignment web") (Molina 2003). In addition, in the case of three e-banking constituencies (i.e. AlAhli, Riyad, and Tadawul) a deeper quantitative assessment of strategic priorities was conducted through the "dynamic strategy mapping" (DSM) (Molina 2005), although restricted only to the present situation.

The discussion highlighted the differences and similarities among the seven case studies, clarified the results, and presented explanations of the major findings. The chapter demonstrated the usefulness of the "alignment web" (Molina 2003) and the "dynamic strategy mapping" (DSM) (Molina 2005) in the analysis of value-creation strategies in e-banking constituency-building processes.

Chapter 12: Conclusion

12.1 Introduction

The aim of the thesis is to look at the emergence and evolution of e-banking in Saudi Arabia, with particular emphasis on the processes of how banks implement e-banking to build their capabilities and create new value strategies. Questions have been raised about the banks' efficiency in utilising the unique features of e-banking for improving their competitive positions and images. There is a growing concern that e-banking is not yielding the anticipated results (Frei & Harker 1999; Amit & Zott 2001; Simpson 2002). This has thrown a spotlight onto the problem of change from one particular delivery channel to another. In practice, an appropriate mix of delivery channels will be determined by a number of factors on the supply and demand sides of the market (Daniel 1999; Lang & Colgate 2003; Bughin 2004). This process was the concern of the thesis.

12.2 Questions of the thesis

The research started with a broad area of inquiry related to understanding and providing an account of the emergence and evolution of e-banking in Saudi Arabia. The inquiry, next, was inductive and aimed to explore and describe the actions of those banks based on what they were doing rather than verifying any hypotheses. The research started the inquiry with an open mind rather than a closed one. The literature that it had reviewed preceding the fieldwork helped to view the empirical world more effectively.

The research process focused on understanding (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks. This required understanding of a variety of aspects (i) the value created by e-banking products and services within different banks, (ii) the process of e-banking development within the different banks, (iii) how banks approach e-banking products and services, and (iv) how the banks align the demand and supply factors surrounding e-banking products and services.

12.3 Structure of the thesis

The aim of this section is to briefly explain the way the thesis has been structured to respond to its questions. The thesis was organised into twelve chapters, with Chapter 1 dedicated to introducing the thesis. Chapter 2 looked at literature relevant to understanding and dealing with the matter of this thesis, that is, the emergence and evolution of e-banking with particular emphasis on (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-

banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks.

The literature review covered a wide range of material on the subject and is believed to be comprehensive and up-to-date. It defined the term “e-banking” and looked briefly at the emergence, evolution, nature, products and services of e-banking. The review then explored the focus of e-banking research through distinguishing among factors influencing the adaptation of e-banking into supply and demand side factors. The demand side factors of e-banking research included marketing, acceptance, usage, quality and trust while that of supply side included competition, resources, implementation, efficiency and productivity.

This was followed by a discussion on the theoretical foundations of value creation and capabilities building in e-banking. It briefly discussed some views on value creation and capabilities building according to Schumpeter’s conventional theory of creative destruction (Schumpeter 1942), resource-based view of the firm (Penrose 1959), transaction costs economics (Williamson 1975), value-chain analysis (Porter 1985), dynamic capabilities approach (Teece et al. 1997), strategic network theory (e.g., Dyer & Singh 1998), and accelerating capability building (Hagel & Brown 2005). This was followed by a discussion on a group of emerging theoretical value creation frameworks in e-business (e.g., Willcocks & Plant 2001; Amit & Zott 2001). The section concluded the discussion by looking at the applicability of these theories in the context of e-banking (e.g., Colgate 1998; Mole 1999; Hensmans et al. 2001), which were enabled us to provide answers to the key questions raised by this thesis regarding how banks create e-banking value.

The discussion, next, looked in details to the technology implementation literature, with particular emphasis on the processes of implementing network technologies and e-businesses. It discussed the term “implementation” and looked briefly at the relation between implementation, innovation and diffusion, the dynamics of the implementation process, and its different stages/phases. It also looked at the implementation challenges, success and failure, implementers’ responsibilities and broad implementation approaches, before ending with a brief review of empirical studies related to the implementation of e-banking products and services, as well as a case study on the implementation of the EFTPOS in the UK during the late 1980s.

The findings of the implementation literature provided the background for the identification of structured process approaches useful to analyse in detail and comparatively the emergence and evolution of concrete e-banking experiences in Saudi Arabia. Consequently, Chapter 2 continued with a discussion on the sociotechnical approach with particular focus on the “sociotechnical constituencies” approach (Molina 1990; 1993) that seemed to offer a more structured framework to organise the comparative study of concrete e-banking experiences, particularly through its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005).

The aim was not only to use the approach to reveal how banks build their e-banking capabilities and create new value strategies, but also to test critically the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding e-banking value creation and capability-building. Accordingly, Chapter 2 provided a brief positioning of the “sociotechnical constituencies” approach (Molina 1990; 1993) in social theory and a review of early “social theory” approaches stressing the interaction between social and technical factors during the development of technology. This was followed by (a) comparing the “sociotechnical constituencies” approach (Molina 1990; 1993) with such theoretical approaches and (b) introducing a group of studies that have attempted to use the “sociotechnical constituencies” approach. A justification to the potential applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) to analysing the emergence and evolution of e-banking in Saudi Arabia concluded the critical analysis, before proceeding to the introduction of the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005), the recent gave the most recent conceptual instruments of the “sociotechnical constituency” approach (Molina 1990; 1993).

Chapter 3 discussed the research methodology and the path the research process followed in conducting the empirical work and analysis. The discussion highlighted the research strategy, which was the case study strategy (Yin 2003), together with the reasons for choosing such a strategy among other research strategies (e.g., experiment). Such reasons were (1) the questions posed by the thesis were “how” and “why” types of questions, (2) the research process would not be able to control behaviour, and (3) the thesis needed to focus on a contemporary event.

Chapter 3 also discussed the research design to develop the logic that linked the collected data to the questions posed by the thesis. The thesis questions led to favouring the e-banking sociotechnical constituency-building process (a case) as the primary unit of analysis, and the bank as the secondary unit of analysis. The research design also used a multiple-case embedded design as a case-study design. Looking at several units of analysis helped not only in understanding the dynamics in operation, but also in enhancing insights to the single case. The data analysis strategy concluded Chapter 3. In Yin (2003: 33)’s words:

“The use of theory, in doing case studies, is not only an immense aid in defining the appropriate research design and data collection, but also becomes the main vehicle for generalising the results of the case study.”

The data analysis strategy of this thesis implemented the theoretical propositions strategy via the utilisation of the “sociotechnical constituencies’ approach” (Molina 1990; 1993) and its associated analytical tools of the “diamond of alignment” (Molina 1995), “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005). The data analysis strategy also utilised a group of methodological strategies and techniques, including pattern-matching, explanation building, logic models, coding, pattern coding, cross-case synthesis, and stacking comparable cases. Such methodological combinations helped to draw sound findings.

To provide insights about the possible approaches to the thesis, the research process conducted two pilot studies during August 2003 in Saudi Arabia with AlRajhi and Riyad. These pilot studies were initial and of an exploratory role. The findings of the pilot studies were critically important in formatting the data collection process, in particular, and the entire research, in general. The findings led to the use of three sources of evidence: (1) a survey that was distributed to all Saudi banks, (2) semi-structured interviews, and (3) archival records of e-banking transactions provided by SAMA. The main fieldwork was conducted during three rounds: September-October 2003, December 2003-March 2004, and December 2005-January 2006.

The structure of the thesis then moved to investigating the emergence and evolution of e-banking at six Saudi banks as well as an inter-bank technological system at the Saudi Capital Market, providing an external view of the emergence and evolution of e-banking in Saudi Arabia. This made up a total of seven case studies, with each case study making up a single chapter (i.e. Chapter 4, 5, 6, 7, 8, 9, and 10) and following a largely common structure.

Such common structure started with a brief overview of the organisation (e.g., the bank) and some of the key events shaping the organisation's developments since inception. It then looked at the particular development of e-banking at the organisation through the conceptual lens of the "diamond of alignment" (Molina 1995). The diamond selected for the analysis was a two-layered intra- and inter-organisational diamond, given that important features of the organisation's e-banking constituency-building process were the result of inter-organisational interactions between the organisation and other organisations. A section with policy implication concluded each of the seven chapters.

Following such systematic structure, Chapter 4 investigated the emergence and evolution of e-banking at Samba. The discussion distinguished two distinctive periods in the evolution of the Samba e-banking constituency. The first period goes from the beginnings of Samba to the late 1990s when the merger with USB occurred. This was followed by the second period that extends until today and in which the Internet plays a major role. To highlight the differences between the two periods, the "diamond of alignment" (Molina 1995) was applied separately to each of the two periods.

Chapter 5 investigated the emergence and evolution of e-banking at AlRajhi. The discussion distinguished three phases in the evolution of AlRajhi e-banking constituency: origins (1987-1995), development (1996-2000), and present state (2001-2006). To highlight the differences between the three phases, the "diamond of alignment" (Molina 1995), was applied separately to each phase. Chapter 6 investigated the emergence and evolution of e-banking at Saib. The discussion briefly assessed the state of Saib's e-banking constituency prior to the implementation of BIT. It was then geared toward the implications of the implementation of BIT, which went from the late 1990s to today.

Chapter 7 investigated the emergence and evolution of e-banking at Hollandi. The discussion focused on the evolution of the Hollandi e-banking constituency as well as its implications for Hollandi today. Chapter 8 investigated the emergence and evolution of e-banking at AlAhli. The discussion focused on the evolution of the AlAhli e-banking constituency as well as its implications for AlAhli today. Chapter 9 investigated the emergence and evolution of e-banking at Riyadh. The discussion focused on the evolution of the Riyadh e-banking constituency as well as its implications for Riyadh today.

Expanding the discussion toward an inter-bank technological system and the implications it has on the sociotechnical constituency-building process in Saudi banks provided an external view of the emergence and evolution of e-banking at Saudi Arabia. Accordingly, Chapter 10 investigated the emergence and evolution of the trading, clearing and settlements system of securities in the Saudi Capital Market (i.e. Tadawul). Such view generated more insights as the Tadawul constituency involves important constituents spread across all Saudi banks.

The emergence of the Tadawul constituency found its historical origins in the ESIS constituency that developed during the 1990s. Therefore, it was necessary to assess the build-up of the ESIS constituency before looking at the particular development of the Tadawul constituency, which goes from the late 1990s until today, through the conceptual lens of the “diamond of alignment” (Molina 1995). Again, the diamond selected for the analysis was a two-layered intra- and inter-organisational diamond, given that important features of the Tadawul’s constituency-building process are the result of intra- and inter-organisational interactions between Tadawul and other organisations.

Following the investigation of the emergence and evolution of e-banking at each of the six Saudi banks as well as at the Saudi Capital Market, the thesis next looked at, in Chapter 11, an integrative picture of Saudi e-banking. The discussion compared and contrasted the emergence and evolution of e-banking among the seven case studies. The discussion made use of conceptual tools associated with the “sociotechnical constituencies” approach (Molina 1990; 1993), namely, the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) (Molina 2005) of e-banking constituency-building processes. The discussion also took a comparative perspective, highlighting differences and similarities among the seven case studies.

It started with the application of the “alignment web” (Molina 2003) to analyse quantitatively the current state of the process of sociotechnical alignment for each of the Saudi e-banking constituencies. This assessment related to the more qualitative assessment conducted in the previous chapters with the case studies. It was indeed complementary since the content of the “diamond of alignment” table (Molina 1995) was developed by the author as a summary interpretation of the constituency-building story, while the markings of the “alignment web” (Molina 2003) were given by key players in each of the e-banking constituency-building processes.

This was then supplemented by the application of the “dynamic strategy mapping” (DSM) (Molina 2005) in the case studies of three e-banking constituencies (i.e. AlAhli, Riyad, and Tadawul). The “dynamic strategy mapping” (DSM) (Molina 2005) was however applied only to the current phase of development of the e-banking constituencies of the three e-banking constituencies. The combined use of the tools produced a detailed assessment of the current state of the process of sociotechnical alignment for each of the e-banking constituencies.

Chapter 12, that is, this chapter, concludes the thesis by highlighting its empirical contribution, strategy-policy recommendations, and assessment of the thesis. In addition, this concluding chapter provides the results of testing the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) for understanding e-banking value creation and capability-building, as well as suggestions for further research. Additional material supportive to the argument in the thesis is given in the appendices.

12.4 Empirical contribution

Yin (2003: 10) highlights the fashion for generalisation from case studies:

“Case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a ‘sample’, and in doing a case study, your goal will be to expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation).”

This thesis contributes to providing a rich insight into the emergence and evolution of e-banking in Saudi Arabia. The majority of the literature in the field of e-banking has been written with reference to the industrial world. This thesis fills a gap in the literature as it provides an understanding of this phenomenon in a part of the developing world which has not been studied in this respect before. More, specifically, the thesis provides a rich insight on the emergence and evolution of e-banking at six banks among eleven Saudi banks as well as at an inter-organisational technological system involving five inter-bank payment systems. The study of the latter technological system helped give an external insight about the evolution of e-banking products and services in Saudi Arabia.

The results showed an important distinctive characteristic that distinguishes the Saudi Arabian e-banking development from these at western banking sectors. Such characteristic is the dissemination of Islamic banking products and services through e-channels. The discussion on the emergence and evolution of e-banking in Saudi Arabia showed that Islamic banking was provided during the 1980s by only ARCCEC. This evolved during the 1990s when many conventional banks (e.g., Samba and Saib) offered Islamic banking products and services (e.g., Samba’s AlSunbula Investment Fund).

The 2000s witnessed evolutions of Islamic banking when not all Saudi banks established Sharia’h Committees, but also many conventional banks have been transformed to wholly Islamic banks (i.e.

AlAhli, AlJazira Bank, AlBilad). The 2000s also witnessed the dissemination of Islamic banking through e-channels when many Saudi banks offered Islamic e-banking products and services (e.g., Salam card of AlRajhi and Sukuk of Tadawul). Such trend seems to continue, distinguishing the Saudi Arabian e-banking development from these at western banking sectors.

12.5 Strategy-policy implications

The aim of this section is to lay out the strategy-policy implications of the thesis. Such implications are divided into two groups. The first group lays out specific policy implications toward the development of each bank being studied (i.e. Samba, AlRajhi, Saib, Hollandi, AlAhli, and Riyadh) as well as the Saudi Capital Market (i.e. Tadawul). This is followed by the second group that lays out general policy implications toward the development of the entire Saudi Arabian banking sector.

12.5.1 Specific strategy-policy implications

Specific strategy-policy implications toward the development of each of the seven e-banking constituencies being studied are as follows.

12.5.1.1 Samba Financial Group (Samba)

Samba's healthy performance in financial and technical terms reveals that the broad value-creation strategy is successful. The capabilities of the e-banking constituency-building process have evolved since commencement of the first phase (i.e. before 1997). The current state of alignment in the e-banking constituency-building process shows a great deal of strength. The weakest areas however were identified inside the "governance" dimension of the "diamond of alignment" (Molina 1995).

Moreover, challenges at both the inter-organisational dimension of the process, in particular the customers' constituent, and the intra-organisational dimension of the process, in particular the rewards for ICT-based innovators' constituent, still exist. This suggests the need for closer examination of the e-positioning strategy with the objectives of not only improving such areas of challenge, but also improving its future development.

12.5.1.2 AlRajhi Bank (AlRajhi)

AlRajhi's healthy performance in financial and technical terms reveals that the strategies implemented are successful. The capabilities of the e-banking constituency-building process have evolved since the initial phase. However, a challenge at the intra-organisational dimension of the process still exists, in particular with regard to "effective mechanisms for socialising a new mix of technologies". On the one hand, this suggests the requirement for further efforts to eliminate present weaknesses in the value creation and capabilities building strategies.

On the other hand, it converges with Porter's (1996) suggestion that an organisation needs to rethink its existing competitive advantage strategy every decade. The ORP has been in place since mid-1995, accordingly AlRajhi would do well to re-examine its strategy in order to secure its competitive position. Given that AlRajhi is getting ready to expand internationally, starting with its new branches in Malaysia, the future is bound to bring new challenges that will surely influence its development. Consideration of the findings presented here might help AlRajhi's positioning strategy in the sector.

12.5.1.3 Saudi Investment Bank (Saib)

While Saib progressed substantially in some efforts, in others the results were more mixed. The e-banking constituency-building process has developed since the late 1990s, with combined efforts at both intra- and inter-organisational levels which have shaped the characteristics of the present e-banking constituency. While the process has progressed substantially in some efforts, in others the results have been more mixed. Investing in innovative e-banking products and services is recommended to strengthen not only the strategic positioning but also the accelerating capability building strategies of the e-banking constituency.

12.5.1.4 Saudi Hollandi Bank (Hollandi)

Although the broad value-creation strategy has helped Hollandi to protect its position within the sector, the corporate banking performance, and particularly the e-banking performance, is modest compared to its rivals. The e-banking constituency-building process has developed in a limited fashion. Although some efforts had been made on the technological side, on other sides, the efforts have had only modest advance.

Hollandi's e-banking process has suffered from problems of resources, organisation and marketing. These problems will have to be addressed if Hollandi is going to pursue and achieve a stronger competitive position in the e-banking market. Such efforts could start by taking care primarily of the culture of the local market (i.e. Saudi culture). This could be followed by a reassessment of the broad value-creation strategy in the context of the challenges facing Hollandi's e-banking constituency building process.

12.5.1.5 The National Commercial Bank (AlAhli)

The progress of AlAhli in creating value through e-banking has been significant, considering the bank's long period of decline that ended in the 1990s. The performance in both financial and technological terms is healthy and is likely to remain so for the foreseeable future. It is worth stressing that implementation of the broad value-creation strategy requires high degrees of alignment with the organisational and industrial corporate policies.

12.5.1.6 Riyadh Bank (Riyad)

Implementation of the broad value-creation strategy at Riyadh has been rather mixed from the point of view of Riyadh's declared mission to become "the leading Saudi bank". The performance in financial terms is healthy, while in technological terms it is not as strong as required by an increasingly competitive environment. The broad value-creation strategy would benefit from a close critical review.

12.5.1.7 The Saudi Capital Market (Tadawul)

The performance of the Saudi Capital Market through the Tadawul constituency is healthy in both financial and technological terms. The constituency-building process has developed significantly since the late 1990s, involving efforts at both intra- and inter-organisational levels. The implementation of a broad value-creation strategy has been well aligned with the market's corporate policy. However, it is worth stressing that implementation of the optimal strategic approaches require high degrees of alignment with organisational and industrial corporate policies.

12.5.2 General strategic-policy implications

Having laid out specific policy implications for the development of each e-banking constituency being studied as well as the Saudi Capital Market, it is time now to lay out general strategic-policy implications for the development of the entire Saudi Arabian banking sector. Figure 12.5.I visualises the sectoral positions of the existing banks in Saudi Arabia as of July 2006.

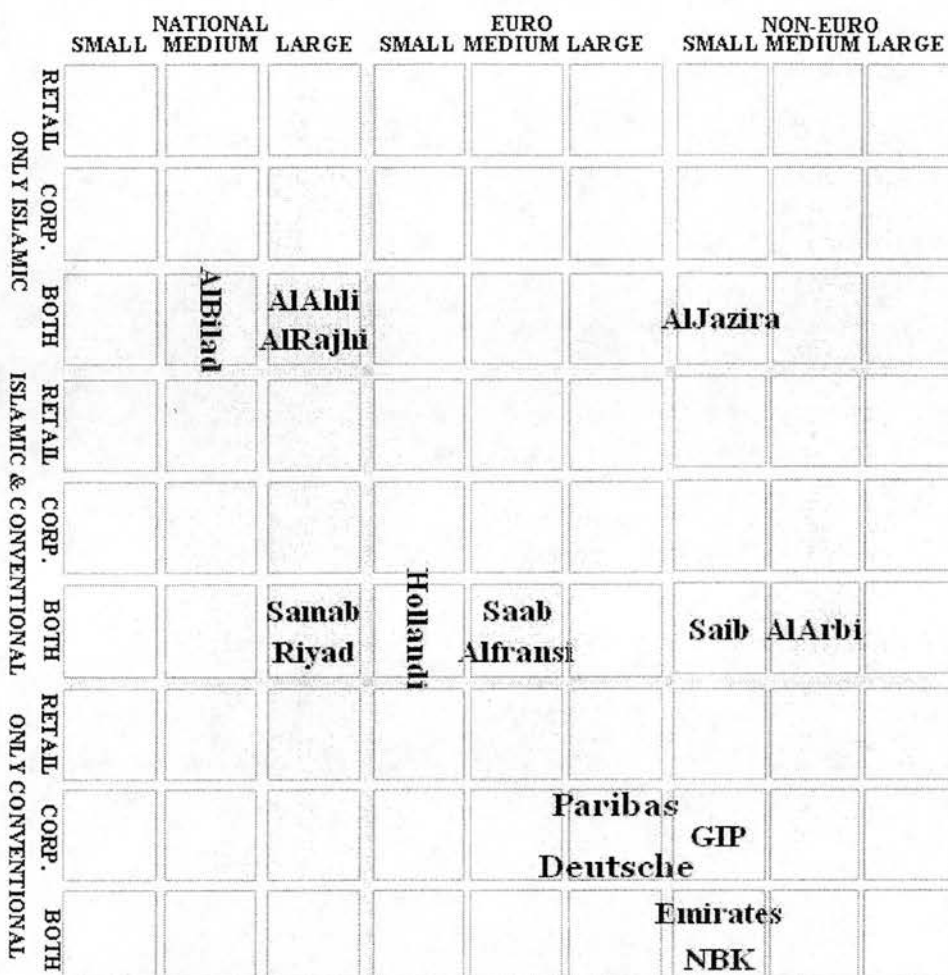


Figure 12.5.I Existing positions of banks within the Saudi banking sector as of November 2006

The horizontal axis in Figure 12.5.I divides banks according to the type of ownership (i.e. national, European joint venture and non-European joint venture) and the size of total assets (small, medium, and large). In turn, the vertical axis divides banks according to the type of products and services (i.e. Islamic only, conventional-Islamic and conventional only) and the type of main target customers (i.e. retail, corporate and retail-corporate). For example, Saib and AlJazira are similar in terms of the size of total assets. However, Saib furnishes customers with both Islamic and conventional banking products and services while AlJazira furnishes customers with only Islamic banking.

12.5.2.1 Important developments

Figure 12.5.I, however, does not tell the complete story and two important developments in the Saudi banking sector must be taken into consideration. The first development is the arrival of non-Saudi banks that are commencing or will commence operations in the sector. As of November 2006, SAMA has issued operating licences for ten non-Saudi banks. While some licences allow banks to provide both retail and corporate banking products and services, others allow banks to provide corporate banking products and services only.

Banks that have already started operations are Gulf International Bank (GIB), since July 1999, Emirates Bank, since August 2004, BNP Paribas, since October 2005, Deutsche Bank, since April 2006 and National Bank of Kuwait, since May 2006. The remaining five banks that have obtained operating licenses but have not yet commenced operations are J.P. Morgan Chase N. A., Muscat Bank, National Bank of Bahrain, National Bank of Pakistan and State Bank of India.

The second development is the establishment of a national mega bank, AlEnmaa Bank (AlEnmaa). The Council of Ministers approved at the end of March 2006 the launch of a new national bank with a share capital of SAR 15 billion. AlEnmaa Bank will carry out both banking and investment activities. PIF, PF and GOSI will have a 30% stake in AlEnmaa, with each holding 10% of its shares. The remaining 70% will be sold in an initial public offering at the end of this year.

Having highlighted the two important developments in the Saudi banking sector, it is possible to lay out general strategic-policy implications toward the development of the Saudi Arabian banking sector.

12.5.2.2 Customers' constituent

The Saudi e-banking constituency-building process is evolving with a mixed role played by all dimensions of the "diamond of alignment" (Molina 1995) in the shaping of the new constituency. While the alignment with the dimension "target constituents" exhibits a strong state of alignment, the alignment with the dimension "governance" represents a challenge. The common factor between these two alignments is the area of customers, which reveals a difficulty of approach by the constituencies. Accordingly, it is recommended to give customers more opportunities to participate in the process of e-banking constituency-building.

12.5.2.3 Strategic priorities

The discussion on the "dynamic strategy mapping" (DSM) (Molina 2005) of AlAhli, Riyadh, and Tadawul shows that at more detailed levels of strategy each e-banking sociotechnical constituency has its own evolutionary way. AlAhli's constituency focuses more on features that give competitive advantage to e-banking products and services than other features. AlAhli's performance in both financial and technological terms is strong.

In turn, the "governance (in-house)" feature has been identified as the most important one within Riyadh's "dynamic strategy mapping" (DSM). The combined value-creation strategies implemented by Riyadh are worth a close critical review. Tadawul's constituency, however, regards "process technology" as the most important feature while entirely excluding the "distinctive product/service attributes". However, given the recent important developments (e.g., new entrances), re-examining the strategic dimensions of the "dynamic strategy mapping" (DSM) (Molina 2005) is recommended.

12.6 Assessment of the thesis

This section aims to provide a general assessment of this thesis by identifying three strengths as well as three weaknesses.

12.6.1 Strengths

This section introduces three strengths of this thesis, namely the logic replication, narrative writing, and validating procedure.

12.6.1.1 Logic replication

The first strength of this thesis is its logic replication. This was done through the implementation of a largely common structure to write the case studies (i.e. Chapter 4, 5, 6, 7, 8, 9 and 10). As indicated earlier, such common structure started with a brief overview of the organisation (e.g., the bank) and some of the key events shaping the organisation's developments since inception. It then looked at the particular development of e-banking at the organisation through a single conceptual instrument (i.e. the "diamond of alignment", Molina 1995). A section with policy implication concluded each case study. The replication logic helped to either "(a) predict similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)," (Yin 2003: 47). The following paragraph discusses the first issue.

Replication of knowledge is an important criterion in reporting a case study, as indicated by Yin (2003: 47), "only with such replications would the original finding be considered robust and worthy of continued investigation or interpretation." For instance, Samba case study (i.e. Chapter 4) provided an in depth understanding of the Saudi e-banking value creation and capability-building during the 1990s and 2000s through separately applying the "diamond of alignment" (Molina 1995) to each of the two periods.

This was followed by AlRajhi case study (i.e. Chapter 5) that applied the "diamond of alignment" (Molina 1995) to three periods: 1980s, 1990s, and 2000s. The last two periods replicated the understanding of the Saudi e-banking value creation and capability-building with that of Samba while the first period produced a new phenomenon (i.e. during 1980s) about Saudi e-banking value creation and capability-building. The following case studies (i.e. Chapter 6, 7, 8, 9, and 10) either added more replication, provided new phenomenon, or both.

12.6.1.2 Narrative writing

The second strength of this thesis is its narrative writing form. The implementation of a largely common structure to report the case studies on Saudi e-banking not only helped replicating the logic, but also allowed contrasting results through following a question-and-answer form. Yin (2003: 148) defines the term "question-and-answer form" and highlights its benefits:

“[The question-and-answer narrative form is] a series of questions [that] can be posted, with the answers taking some reasoning length – for example, three or four paragraphs each. Each answer can contain all the relevant evidence and can even be augmented with tabular presentations and citations... the same question-and-answer format [is] used in each case, so that the interested reader could do his or her own cross-case analysis by following the same question across all of the cases. The format allows hurried readers to find exactly the relevant portions of each case.”

Such a narrative form allows readers to conduct a cross-case analysis by looking at the same question across all of the seven case studies. For instance, all case studies looked at the role of “governance” in e-banking development. Within this issue, the question of what is the role of bank governance was answered at each case study. Therefore, if readers would wish to know the role of Saudi bank governance during the e-banking development, they have the opportunity to look under the heading “organisational governance” at each case study.

Another example is the separation of periods of e-banking development. If readers would like to explore the influences on the e-banking implementation during the 1990s, they have the opportunity to look under the origins of each e-banking sociotechnical constituency. The issue of narrative question-and-answer form facilitated the development of a cross-case analysis that acknowledges readers’ varieties of interests (Yin 2003).

12.6.1.3 Validating procedure

The third strength is the procedure that has been followed to strengthen the validity of the overall quality of the thesis. Yin (2003: 159-160) describes the sequence of the validity procedure and highlights its consequences:

“A major way of improving the quality of case studies and ensuring their constructive validity is to have the draft cases reviewed by those who have been the subject of the study.... The procedure is to have the draft report reviewed, not just by peers (as would be done for any research manuscript) but also by the participants and informants in the case... The informants and participants may still disagree with an investigator’s conclusions and interpretations, but these reviewers should not disagree over the actual facts of the case.... From a methodological viewpoint, the corrections made through this process will enhance the accuracy of the case study, hence increasing the construct validity of the study... When the process has been given careful attention, the potential result is the production of a high-quality case study.”

Although longitudinal studies are costly, time-consuming, and difficult to implement, the thesis applied a longitudinal approach to gather the information necessary to evaluate phase models of strategy development. This has been conducted in two ways: contacts with Saudi banks (i.e. a review by the subject of the study) and presentation and publication at international academic conferences (i.e. a review by academic and research peers).

The continued contact with Saudi banks, either during the three rounds of the main field work, or during the following span of time, helped to improve the overall quality of the thesis. For instance, the

criticisms received from Riyadh's Vice CEO about the conclusion of the qualitative analysis of the Riyadh's e-banking constituency as well as from Saib's CEO about the interpretation of the role of Saib within the Saudi Arabian banking sector not only helped to clarify many issues, but also supported the validity of the findings and strength of the conclusion. Another example came from Tadawul's third round when additional recent statistics about share transactions have been obtained to help triangulating the sources of evidence.

The continued presentation and publication of the research at international academic conferences helped to improve the overall quality of the thesis as it offered an academic review, either during the acceptance process or during the presentations at the conferences, to the initial version of the qualitative analysis of the e-banking constituencies. For example, the first version of the qualitative analysis of the Samba's e-banking constituency received critiques by some audience during the 4th e-Business Research Forum (Tampere, Finland, 20-22 September 2004) on the relationship between Islamic banking and e-banking development. Also, the first version of the qualitative analysis of the AlRajhi's e-banking constituency was criticised by some audience during the 4th IBIMA Conference on Information Management in Modern Enterprise (Lisbon, Portugal, 5-7 July 2005) on the scientific validity of integrating a number of theoretical concepts⁷⁸. These critical comments led to improving the content of the thesis.

In conclusion, the logic replication, narrative writing, and validating procedure conducted by this thesis represent three strengths. Next, I discuss three weaknesses of this thesis.

12.6.2 Weaknesses

This section introduces three weaknesses of this thesis, namely theoretical awareness, chronological approach, and quantitative assessment.

12.6.2.1 Background theory

The first weakness relates to the demonstration of the full professional grasp of the background theory necessary to understanding and dealing with the matter of this thesis. Phillips and Pugh (2002: 59) describe the theoretical requirements for the full professional standards required to demonstrate the background theory:

“[Background theory] is the field of study within which you are working and which you must know well ... The standard way of demonstrating this is through a literature review ... You are doing [this] in order to demonstrate that you have a fully professional grasp of the background theory to your subject... So organising the material in an interesting and useful way, evaluating the contributions of others (and justifying the criticisms, of course), identifying trends in research activity,

⁷⁸ See Appendix VII for more details.

defining areas of theoretical and empirical weakness, are all key activities by which you would demonstrate that you had a professional command of the background theory.”

Although this thesis made all possible efforts to demonstrate the full professional grasp of the background theory necessary to understanding and dealing with its matter, the wide range of theories that have relevance to such a complex problem as the emergence and evolution of e-banking in Saudi Arabia makes it difficult to cover all of them with the same degree of depth. In this thesis, the mechanism to build the background theory was to look at the keywords of the questions of the thesis (e.g., technology implementation, capabilities building, value creation, strategy formulation) as well as its different aspects (e.g., e-banking development, alignment) as a guide to explore related theoretical literature. Then, it made informed choices about the topics to be dealt with in greater detail. Thus, while the background theory looked in greater detail the technology implementation literature as well as process approaches, it looked rather briefly to many theoretical foundations of value creation and capabilities building in context of e-business and e-banking.

12.6.2.2 Chronological structure

The second weakness of this thesis is the chronological approach followed to write the case studies (i.e. Chapter 4, 5, 6, 7, 8, 9, and 10). Yin (2003) suggested six illustrative structures to write a case study: linear-analytic, comparative, chronological, theory-building, suspense, and sub-sequenced. Yin (2003: 153-154) describes the norm of the chronological structure and its pitfall:

“[Chronological structure] is to present the case study evidence in chronological order... [It] can serve an important purpose in doing explanatory case studies because presumed causal sequences must occur linearly over time.... [However,] disproportionate attention is usually given to the early events and insufficient attention to the later ones.... To avoid this situation, one recommendation ... is to draft the case study backward.”

Although the largely common structure followed by this thesis to write the case studies helped to replicate the logic as well as to contrast results through following a question-and-answer narrative form, it negatively influenced the balanced treatment of the case study's events. For instance, Saib and Tadawul case studies (i.e. Chapter 6 and 10, respectively) assessed briefly the origins of the e-banking sociotechnical constituencies, while it assessed deeply the current state of the e-banking sociotechnical constituencies.

Moreover, the assessment of some case studies looked at more than one period in the development of the e-banking constituency (e.g., Samba and AlRajih case studies looked at two and three periods, respectively), while it only looked at a single period in the development of other e-banking constituencies (e.g., AlAhli and Riyadh case studies looked only at the current period).

12.6.2.3 Quantitative assessment

The third weakness of this thesis is the accuracy of the quantitative assessment (i.e. Chapter 11) that followed the qualitative assessment (i.e. Chapter 4, 5, 6, 7, 8, 9, and 10). In the case studies of AlRajhi, Riyadh and Tadawul, for instance, the interviewees during the first round of the semi-structured interviews (i.e. during December 2003-January 2004) were different from those during the second round of the semi-structured interviews (i.e. during December 2005-January 2006). This was due to the unavailability of the former interviewees for both rounds of interviews because of a change of position inside or outside the bank. Such limitations created follow-up challenges while investigating the evolution of the e-banking constituency.

Moreover, the initial plan of the “dynamic strategy mapping” (DSM)’s assessment was to conduct an evolutionary assessment of all the seven case studies. After approaching the second round of the semi-structured interviews (i.e. during December 2005-January 2006), however, achieving such an objective was found to be difficult. This was for two reasons. First, the time offered by interviewees was quite limited so that only the “alignment web” could be assessed. Second, the “dynamic strategy mapping” (DSM)’s is so deep that extra time is needed not only to think about all its dimensions, but also to understand each one. Accordingly, the assessment of the “dynamic strategy mapping” (DSM) was limited to the current state of the e-banking constituency-building process at AlAhli, Riyadh and Tadawul.

The strength of the quantitative assessment is another issue related to the accuracy. For instance, the fact that the markings for the “alignment web” (Molina 2003) and “dynamic strategy mapping” (DSM) were given by just one person weakens the strength of the assessment through the potential introduction of biases. Accordingly, if the assessment would have been conducted by more than one person, it would have increased the strength of the result.

In conclusion, the theoretical awareness, chronological approach, and quantitative assessment followed by this thesis represent three weaknesses.

Next, I discuss the results of testing the applicability of the “sociotechnical constituencies” approach and its associated analytical tools for understanding e-banking value creation and capability-building.

12.7 The applicability of the “sociotechnical constituencies” approach

The aim of this section is to present some important results obtained from testing the potential of the “sociotechnical constituencies” approach (Molina 1990; 1993) and its associated analytical tools (Molina 1995; 2003; 2005) in the analytical and comparative treatment of the concrete e-banking experiences of Saudi Arabia. The “sociotechnical constituencies” approach complements many insights from the literature review on value creation and capability-building perspectives,

implementation process, and “social theory” frameworks, which identify value-creation and capability-building as complex technological and organisational processes.

The first strength of the applicability of the “sociotechnical constituencies” approach is that it features a systematic analytical approach for the interaction of different social and technological factors during the development of e-banking constituencies. This thesis demonstrated the applicability of the “sociotechnical constituencies” approach and its associated analytical tool of the “diamond of alignment in the systematic analytical and comparative treatment of the concrete e-banking experiences of Saudi Arabia.

For instance, the emergence and evolution of the AlRajhi’s e-banking sociotechnical constituency process (i. e. Chapter 6) was one of the complex and complicated processes among the processes discussed in this thesis. However, utilising the “sociotechnical constituencies” approach and its associated “diamond of alignment helped to look at three different periods of AlRajhi’s e-banking sociotechnical constituency process: 1990-1995, 1996-2000, & 2001-2006. Such utilisation also helped not only to arrange systematically the sequence of e-banking evolution, but also to question logically the causal proposition of such evolution. This result is consistent with that of Kinder and Lancaster (2001), who suggested that the “sociotechnical constituencies” approach and its associated analytical tool of the “diamond of are appropriate tools in analysing the processes of implementation where a particular outcome is privileged.

The second strength of the applicability of the “sociotechnical constituencies” approach (Molina 1990; 1993) is that it offers specific tools to structure the *dynamic understanding* of the evaluation of processes of technological innovation and value-creation strategies. These tools are the “diamond of alignment”, “alignment web”, and “dynamic strategy mapping” (DSM). The structure of the survey (see Appendix I), for instance, was grounded on the dimensions of the “diamond of alignment”.

On the one hand, this helped to capture the dynamics of the e-banking socitechnical constituency process as well as to organise the way of thinking about the evolution of such process. On the other hand, the analytical tools helped lay the ground to build the “question-and-answer form” narrative writing as well as to structure the case studies. The analytical tools were also valuable to present in a consistent visual way the state of alignment harmony of the capability-building processes. Such visual capability not only allows an immediate understanding and communication of the strengths and weaknesses of a specific value creation and capability-building process, but also highlights those strategic areas requiring greater attention to secure the success of the constituency-building process.

This result is consistent with that of Kinder (2000), who suggested that the “sociotechnical constituencies” approach acts as a conceptual instrument for the understanding and guidance of processes of innovation and implementation.

At the same time, this thesis counters the argument raised by Gilbert et al. (2001), who argued that the “sociotechnical constituencies” approach does not allow one to study and understand the dynamic behaviour of innovation networks. The theoretical ground of such judgement excluded Molina’s work on the “diamond of alignment” (Molina 1995), while the judgement of this thesis is based on all of the “sociotechnical constituencies” approach’s available analytical tools. This makes the judgment of this thesis theoretically more sound than that of Gilbert et al. (2001).

The third strength of the applicability of the “sociotechnical constituencies” approach is the usefulness of its recent tools, namely, the “alignment web” and “dynamic strategy mapping” (DSM) for the analysis of value-creation strategies in e-banking constituency-building processes. Although the assessment process for such recent tools (Molina 2003; 2005) faced some difficulties related to the accuracy and strength of the responses, it helped to provide deeper insights about the e-banking constituency-building process.

The “alignment web” helped visualise the alignment gaps in the e-banking constituency-building processes, while the “dynamic strategy mapping” (DSM) enabled not only the identification of the combination of specific ingredients making up the value-creation strategies of different constituency-building processes, but also the assessment of the different priorities given to these specific ingredients by key constituents.

The work reviewed in Chapter 2 (e.g., Klaes 1997; Kinder et al. 1999; Molina & Michilli 1999; Molina & Kinder 2002; Molina & Gregson 2002;) has lent support to the applicability of the “sociotechnical constituencies” approach in highlighting practical issues and choices facing policy makers and implementers in terms of the alignments necessary for the deployment of innovation. However, this work has been primarily concerned with its strengths in dealing with processes of technology innovation and implementation, and did not seek to identify weaknesses in the approach or its applicability.

In order to fill such gap in the literature, the experience of this thesis identifies a major weakness in the applicability of the “sociotechnical constituencies” approach and its associated analytical tools for research in the understanding of technology implementation, in general, and e-banking value creation and capability-building, in particular. Such weakness is that the “sociotechnical constituencies” approach and its associated analytical tools are highly complex with the result that a great deal of effort and caution are needed to optimally utilise them in understanding the empirical world.

For instance, the development of the survey (see Appendix I) and the methodological procedures followed to customise the “alignment web” and “dynamic strategy mapping” (DSM) to the specific problem of the thesis faced significant challenges. Such challenges were mainly related to the process of simplifying the “sociotechnical constituencies” approach and its associated analytical tools to banks

and interviews in order for them to respond clearly. Therefore, both the data collection and analysis consumed more time than anticipated at the beginning of the research process.

12.8 Suggestions for further research

This section lays out some directions for further research. Such directions are as follows:

- ***Impact of new arrivals:*** A line of further research is to study the impact that the arrival of all new banks (e.g., AlEnmaa, Deutsche Bank, State Bank of India) will have in the development of the e-banking sector in Saudi Arabia.
- ***Non-banking financial e-business:*** The argument of the entire thesis was based on e-banking with a portion based on e-investment (i.e. Tadawul). The thesis provided a rich insight into the emergence and evolution of such a type of e-business. A possible direction for further research is to look at the emergence and evolution of e-business at non-banking financial institutions (e.g., insurance). This would help provide a comparative view among different financial e-businesses.
- ***Product-based e-business:*** An additional possible direction for further research is to look at the emergence and evolution of a product-based e-business (e.g., petrochemical sector). This would also help provide a comparative view among different e-businesses.

12.9 Summary Conclusion

The aim of the thesis was to look at the emergence and evolution of e-banking in Saudi Arabia, with particular emphasis on the processes of how banks implement e-banking to build their capabilities and create new value strategies. Specific questions addressed through the thesis were (1) how banks implement e-banking to build their capabilities as well as to create new value strategies, (2) how e-banking capabilities have been built, and (3) the role played by e-banking in shaping the strategic direction of banks. This required understanding of a variety of aspects (i) the value created by e-banking products and services within different banks, (ii) the process of e-banking development within the different banks, (iii) how banks approach e-banking products and services, and (iv) how the banks align the demand and supply factors surrounding e-banking products and services.

This chapter concluded the thesis by highlighting its empirical contribution, strategy-policy recommendations, and assessment of the thesis. In addition this concluding chapter provided the results of testing the applicability of the “sociotechnical constituencies” approach and its associated analytical tools for understanding e-banking value creation and capability-building, as well as suggestions for further research.

The overall result of the investigation conducted by this thesis found that the Saudi Arabian e-banking' constituency-building process shows distinctive processes of sociotechnical alignment by each one of the specific Saudi Banks' e-banking constituencies in the study. In addition, the use of Molina's "alignment web" to assess the state of each of the specific e-banking constituency-building processes helped identify the areas of strengths and weaknesses in these processes of sociotechnical alignment. For instance, the alignment with "target constituents" exhibits a strong state of alignment while that with "governance" represents a significant challenge. The common factor between these two alignments is the area of customers, which reveals a difficulty of approach by the constituencies, suggesting the importance of giving customers more opportunities to participate in the process of e-banking constituency-building.

The distinctiveness of development by each sociotechnical constituency was also highlighted by the application of the Molina's "dynamic strategy mapping" (DSM), showing that each constituency has its own combination of strategic ingredients. Indeed, each e-banking sociotechnical constituency has its own evolutionary way of focusing on certain features that give competitive advantage to e-banking products and services. While some Saudi banks focus more on inter-organisational features, others focus more on intra-organisational ones, suggesting the importance of not only investing in banking technologies, but also importing such technologies from outside to enhance the performance of the e-banking constituency-building process.

Overall, this thesis contributes to provide a rich insight into the emergence and evolution of e-banking in Saudi Arabia. Such contribution may be used to inform the future alignment strategy pursued by each the Saudi Arabian e-banking constituencies.

Bibliography

- AB Arabian Business e-achievement awards 2003 Winners.
<http://www.gitextimes.com/eawards/2003.php> 29-3-2005.
- Adler, P. S. & Borys, B. 1989. Socio-dets and techno-dets: Determinants of diffusion and implementation patterns of automated machine tools. Journal of Engineering and Technology Management, 6(2): 161-185.
- Afuah, A. 2000. How much do your co-opetitors' capabilities matter in the face of technological change? Strategic Management Journal, 21(3): 387-404.
- Afuah, A. 2003. Innovation management: Strategies, implementation and profits. New York: Oxford University Press.
- Ajzen, I. & Fishbein, M. 1980. Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I. 1991. The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2): 179-211.
- Akamavi, R. K. 2005. Re-engineering service quality process mapping: e-Banking process. International Journal of Bank Marketing, 23(1): 28-53.
- Akrich, M. & Latour, B. 1992. A summary of a convenient vocabulary for the semiotics of human and nonhuman assemblies. In Bijker, W. E. & Law, J. (Eds.), Shaping technology/building society studies in sociotechnical change: 205-224. Cambridge, Mass: MIT Press.
- Al-Ashban, A. & Burney, M. 2001. Customer adoption of tele-banking technology: The case of Saudi Arabia. International Journal of Bank Marketing, 19(5): 191-200.
- Al-Dukheil, A. M. 1995. The banking system and its performance in Saudi Arabia.
- Al-Ghamdi, S. Operations reengineering project: aim and achievements. AlRajhi World [52], 11. 1999. Riyadh, Saudi Arabia, AlRajhi Bank.
 Ref Type: Magazine Article
- Al-Ghomlas, A. AlRajhi and SARIE. AlRajhi World [52], 10. 1-7-1999. Riyadh, Saudi Arabia, AlRajhi Bank.
 Ref Type: Magazine Article
- Al-Jalad, N. An IT application for checks settlement in regional offices. AlRajhi World [52], 10. 1-7-1999. Riyadh, Saudi Arabia, AlRajhi Bank.
 Ref Type: Magazine Article
- Al-Shaikh, S. How GCC banks can compete in an Open market. The 3rd Banking and Financial Institutions Conference. 2002. Riyadh, Saudi Arabia, The Institute of Banking. 20-1-2002.
 Ref Type: Conference Proceeding
- Al-Suhaibani, M. & Kryzanowski, L. 2000. An exploratory analysis of the order book, and order flow and execution on the Saudi stock market. Journal of Banking & Finance, 24(8): 1323-1357.
- Aladwani, A. M. 2001. Online banking: A field study of drivers, development challenges, and expectations. International Journal of Information Management, 21(3): 213-225.
- Alavi, M. & Henderson, J. C. 1981. An evolutionary strategy for implementing a decision support system. Management Science, 27(11): 1309-1323.
- Albarrac, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. 2001. Theories of Reasoned Action and Planned Behavior as Models of Condom Use : A Meta-Analysis. Psychological Bulletin, 127(1): 142-161.
- Altinkemer, K. 2001. Bundling e-banking services. Communications of the Acm, 44(6): 45-47.
- Alwis, D. 2004. The role of intellectual capital in organisational value creation: an application of a theoretical model to two case studies. Thesis, Brunel University.
- AME Info Saudi bank launches Saudi Arabia's first Visa smart card.
<http://www.ameinfo.com/25143.html> 23-7-2005.
- Amit, R. & Schoemaker, P. J. H. 1993. Strategic assets and organizational rent. Strategic Management Journal, 14(1): 33-46.
- Amit, R. & Zott, C. 2001. Value creation in e-business. Strategic Management Journal, 22(6-7): 493-520.
- Anandarajan, M., Igbaria, M., & Anakwe, U. 2000. Technology acceptance in the banking industry: A perspective from a less developed country. Information Technology & People, 13(4): 298-312.
- Applegate, L. M., McFarlan, F. W., & McKenney, J. L. 1998. Corporate information systems management: Text and cases. Boston, Mass: Irwin.

- Arksey, H. & Knight, P. T. 1999. Interviewing for social scientists: An introductory resource with examples. Thousand Oaks, Calif: SAGE.
- Armstrong, A. & Hagel III, J. 1996. The real value of on-line communities. Harvard Business Review, 74(3): 134-141.
- Arthur, S. & Nazroo, J. 2003. Designing fieldwork strategies and materials. In Ritchie, J. & Lewis, J. (Eds.), Qualitative research practice: A guide for social science students and researchers: 109-137. London: Sage Publications.
- Arthur, W. B. 1989. Competing technologies, increasing returns, and lock-In by historical events. The Economic Journal, 99(394): 116-131.
- Badham, R., Couchman, P., & McLoughlin, I. 1997. Implementing vulnerable socio-technical change projects. In McLoughlin, I. & Harris, N. (Eds.), Innovation, organisational change and technology: 146-170. London: Thomson.
- Banker, R. D. & Kauffman, R. J. 1991. Case-study of electronic banking at Meridian Bancorp. Information and Software Technology, 33(3): 200-204.
- Barnes, S. J. 2002. The mobile commerce value chain: Analysis and future developments. International Journal of Information Management, 22(2): 91-108.
- Barney, J. B. 1991. Firm resources and sustained competitive advantage. Journal of Management, 17(1): 99-120.
- Barney, J. B. 2001. Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. Journal of Management, 27(6): 643-650.
- Barrett, S. S. 1986. Strategic alternatives and Interorganizational system implementations: An overview. Journal of Management Information Systems, 3(3): 5.
- Barrutia, J. M. & Echebarria, C. 2005. The Internet and consumer power: The case of Spanish retail banking. Journal of Retailing and Consumer Services, 12(4): 255-271.
- Barua, A., Konana, P., Whinston, A. B., & Yin, F. 2001. Driving e-business excellence. Mit Sloan Management Review, 43(1): 36-+.
- Basel Committee Report on Banking Supervision. Risk management for electronic banking and electronic money activities. 1998. Switzerland, Bank of International Settlements.
Ref Type: Report
- Bauer, C. & Colgan, J. 2001. Planning for electronic commerce strategy: An explanatory study from the financial services sector. Logistics Information Management, 14(1/2): 24-32.
- Bauer, H. H., Hammerschmidt, M., & Falk, T. 2005. Measuring the quality of e-banking portals. International Journal of Bank Marketing, 23(2): 153-175.
- Benaroch, M. & Kauffman, R. J. 2000. Justifying electronic banking network expansion using real options analysis. MIS Quarterly, 24(2): 197-225.
- Benjamin, R. I., Rockart, J. F., Morton, M. S. S., & Wyman, J. 1984. Information technology: A strategic opportunity. Sloan Management Review, 25(3): 3-10.
- Bensebaa, F. The impact of strategic actions on the reputation building of e-businesses. International Journal of Retail & Distribution Management 32[6], 286-301. 2004.
Ref Type: Abstract
- Berg, B. L. 1995. Qualitative research methods for the social sciences. Boston: Allyn and Bacon.
- Bhattacharjee, A. 2001. Understanding information systems continuance: An expectation-confirmation model. MIS Quarterly, 25(3): 351-370.
- Bijker, W. E. 1987. The social construction of bakelite: Toward a theory of invention. In Bijker, W. E., Hughes, T. P., & Pinch, T. J. (Eds.), The Social construction of technological systems: New directions in the sociology and history of technology: 159-187. Cambridge, Mass.: MIT Press.
- Bijker, W. E., Hughes, T. S., & Pinch, T. J. 1987. The social construction of technological systems: New directions in the sociology and history of technology. Cambridge, Mass: MIT Press.
- Bijker, W. E. & Law, J. 1992. General introduction. In Bijker, W. E. & Law, J. (Eds.), Shaping technology/building society studies in sociotechnical change: 1-14. Cambridge, Mass: MIT Press.
- Bijker, W. E. 1993. Do not despair: There is life after constructivism. Science, Technology and Human Values, 18(1): 113-138.
- Bijker, W. E. 1995. Of bicycles, bakelites, and bulbs toward a theory of sociotechnical change. Cambridge, Mass: MIT Press.
- BIS. Risk management for electronic banking and electronic money activates. BS/97/122. 1998. Basle, Switzerland, Bank for International Settlements (BIS). Basle Committee on Banking Supervision.
Ref Type: Report
- BME Citigroup withdraws from Saudi Arabia. 29-11-2004.

- BME Making CRM pay its way. 30-3-2005.
- BME A new name, but business as usual at Samba. 29-11-2004.
- Boland, R. J. 1978. The process and product of system design. Management Science, 24(9): 887-898.
- Bonoma, T. V. 1985. Case research in marketing: Opportunities, problems, and a process. Journal of Marketing Research, 22(2): 199-208.
- Bowker, G. 1987. A well-ordered reality: Aspects of the development of schlumberger, 1920-39. Social Studies of Science, 17(4): 611-655.
- Broadbent, M. & Weill, P. 1993. Improving business and Information strategy alignment: Learning from the banking industry. Ibm Systems Journal, 32(1): 162-179.
- Brown, I., Cajee, Z., Davies, D., & Stroebel, S. 2003. Cell phone banking: predictors of adoption in South Africa: An exploratory study. International Journal of Information Management, 23(5): 381-394.
- Buck, S. P. 1996. Electronic commerce: Would, could and should you use current Internet payment mechanisms? Internet Research: Electronic Networking Applications and Policy, 6(2/3): 5-18.
- Bughin, J. 2004. "Attack or convert?": Early evidence from European on-line banking. Omega-International Journal of Management Science, 32(1): 1-7.
- Buzzacchi, L., Colombo, M. G., & Mariotti, S. 1995. Technological regimes and innovation in services: The case of the Italian banking industry. Research Policy, 24(1): 151-168.
- Callon, M. 1986. Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. In Law, J. (Ed.), Power, action and belief: A new sociology of knowledge?: 196-233. London: Routledge and Kegan Paul.
- Callon, M. 1991. Techno-economic networks and irreversibility. In Law, J. (Ed.), A sociology of monsters: Essays on power, technology and domination: 132-161. London: RKP.
- Centeno, C. 2004. Adoption of Internet services in the acceding and candidate countries: Lessons from the Internet banking case. Telematics and Informatics, 21(4): 293-315.
- Chan, R. Y. 1997. Demographic and attitudinal differences between active and inactive cardholders: The case of Hong Kong. International Journal of Bank Marketing, 15(4): 117-125.
- Chang, Y. T. Dynamics of banking technology adoption: An application to Internet banking. 2003. Warwick, UK, Royal Economic Society. Royal Economic Society Annual Conference 2003. 7-4-2003.
- Ref Type: Conference Proceeding
- Chen, T. Y. 1999. Critical success factors for various strategies in the banking industry. International Journal of Bank Marketing, 17(2): 83-91.
- Claessens, J., Dem, V., De Cock, D., Preneel, B., & Vandewalle, J. 2002. On the security of today's online electronic banking systems. Computers & Security, 21(3): 253-265.
- Coase, R. 1937. The nature of the firm. Economica, 4: 386-405.
- Coates, J. F. 1977. Aspects of innovation : Public policy issues in telecommunications development. Telecommunications Policy, 1(3): 196-206.
- Coffey, A. & Atkinson, P. 1996. Making sense of qualitative data: Complementary research strategies. Thousand Oaks: Sage Publications.
- Colgate, M. 1998. Creating sustainable competitive advantage through marketing information system technology: A triangulation methodology within the banking industry. International Journal of Bank Marketing, 16(2/3): 80.
- Collingridge, D. 1980. The social control of technology. London: Pinter.
- Colonia-Willner, R. 2004. Self-service systems: New methodology reveals customer real-time actions during merger. Computers in Human Behavior, 20(2): 243-267.
- Conger, S. A. & Mason, R. O. 1998. Planning and designing effective web sites. Cambridge, MA: Course Technology.
- Consoli, D. 2005. The dynamics of technological change in UK retail banking services: An evolutionary perspective. Research Policy, 34(4): 461-480.
- Cooper, R. B. & Zmud, R. W. 1990. Information technology implementation research: A technological diffusion approach. Management Science, 36(2): 123-139.
- Cooper, R. B. 1994. The inertial impact of culture on IT implementation. Information & Management, 27(1): 17-31.
- Courchane, M., Nickerson, D., & Sullivan, R. 2002. Investment in internet banking as a real option: Theory and tests. Journal of Multinational Financial Management, 12(4-5): 347-363.
- Curley, K. F. & Gremillion, L. L. 1983. The role of the champion in DSS implementation. Information & Management, 6(4): 203-209.

- Daniel, E. & Storey, C. 1997. On-line banking: Strategic and management challenges. Long Range Planning, 30(6): 890-898.
- Daniel, E. 1999. Provision of electronic banking in the UK and the Republic of Ireland. International Journal of Bank Marketing, 17(2/3): 72-82.
- David, P. 1986. Understanding the economics of QWERTY: The necessity of history. In Parker, W. N. (Ed.), Economic history and the modern economist: 30-49. Oxford: Oxford University Press.
- Davis, F. D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3): 318-340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. 1989. User acceptance of computer technology: A comparison of two theoretical models. Management Science, 35(8): 982-1003.
- Dean, J., Susman, G. I., & Porter, P. S. 1990. Technical, economic and political factors in advanced manufacturing technology implementation. Journal of Engineering and Technology Management, 7(2): 129-144.
- Denzin, N. K. 1970. The research act: A theoretical introduction to sociological methods. Chicago: Aldine Pub. Co.
- Denzin, N. K. 1989. Interpretive interactionism. Newbury Park, Calif: Sage Publications.
- Desanctis, G. & Poole, M. S. 1994. Capturing the complexity in advanced technology use: Adaptive structuration theory. Organization Science, 5(2): 121-147.
- Devlin, J. F. 1995. Technology and innovation in retail banking distribution. International Journal of Bank Marketing, 13(4): 19-25.
- Dhillon, G. 2005. Gaining benefits from IS/IT implementation: Interpretations from case studies. International Journal of Information Management, 25(6): 502-515.
- Disco, C. & van der Meulen, B. 1998. Introduction. Getting new technologies together: Studies in making sociotechnical order: 1-13. Berlin: Walter de Gruyter & Co.
- Durkin, M. & O'Donnell, A. 2005. Towards a model of adoption in Internet banking: Strategic communication challenges. Service Industries Journal, 25(7): 861-878.
- Dyer, J. H. & Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. Academy of Management Review, 23(4): 660-679.
- Easterby-Smith, M., Thorpe, R., & Lowe, A. 2002. Management research: An introduction. London: SAGE.
- Edwards, T. 2000. Innovation and organizational change: Developments towards an interactive process perspective. Technology Analysis & Strategic Management, V12(4): 445-464.
- Eisenhardt, K. M. 1989. Building theories from case-study research. Academy of Management Review, 14(4): 532-550.
- Elsherif, H. & Elsayy, O. A. 1988. Issue-based decision support systems for the Egyptian Cabinet. MIS Quarterly, 12(4): 551-569.
- Elzen, B., Enserink, B., & Smit, W. A. 1996. Socio-technical networks: How a technology studies approach may help to solve problems related to technical change. Social Studies of Science, 26(1): 95-141.
- Emmelhainz, M. A. 1993. EDI: A total management guide. New York: Van Nostrand Reinhold.
- Farabi AlRajhi bank: home banking & financial services. <http://www.farabi-me.co.ae/main.aspx?ampid=5&dotid=142> 29-3-2005.
- FDIC. FDIC DOS manual of examination policies: Electronic banking. 2000. Federal Deposit Insurance Corporation. Manual of examination policies.
Ref Type: Report
- Filotto, U. T. P. M. S. F. 1997. Customer needs and front-office technology adoption. International Journal of Bank Marketing, 15(1): 13-21.
- Fincham, R., Fleck, J., Procter, R., Scarbrough, H., Tierney, M., & Williams, R. 1994. Expertise and innovation: Information technology strategies in the financial services sector. Oxford: Clarendon Press.
- Fishbein, M. & Ajzen, I. 1975. Belief, attitude, intention and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.
- Fleck, J., Webster, J., & Williams, R. 1990. Dynamics of information technology implementation: A reassessment of paradigms and trajectories of development. Futures, 22(6): 618-640.
- Fleck, J. 1994. Learning by trying: The Implementation of configurational technology. Research Policy, 23(6): 637-652.
- Fleck, J. & Howells, J. 2001. Technology, the technology complex and the paradox of technological determinism. Technology Analysis & Strategic Management, 13(4): 523-531.

- Flier, B., Bosch, F. A. J. V., & Volberda, H. W. 2003. Co-evolution in strategic renewal behaviour of British, Dutch and French financial incumbents: Interaction of environmental selection, institutional effects and managerial intentionality. Journal of Management Studies, 40(8): 2163-2187.
- Ford, D. 1988. Develop your technology strategy. Long Range Planning, 21(5): 85-95.
- Frambach, R. T., Barkema, H. G., Nooteboom, B., & Wedel, M. 1998. Adoption of a service innovation in the business market: An empirical test of supply-side variables. Journal of Business Research, 41(2): 161-174.
- Freeman, C. 1985. The economics of innovation. IEEE Proceedings, 132(4): 213-221.
- Freeman, C. 1988. Induced innovation, diffusion of innovations and business cycles. In Elliot, B. (Ed.), Technology and social process: 84-110. Edinburgh: Edinburgh University Press.
- Frei, F. X. and Harker, P. T. Value creation and process management: Evidence from retail banking diversity of opinion and financing of new technologies. 1999. Philadelphia, PA, Wharton School Center for Financial Institutions, University of Pennsylvania. Center for Financial Institutions Working Papers.
- Ref Type: Conference Proceeding
- Frost, R. 1999. Marketing on the Internet: Principles of on-line marketing. Englewood Cliffs, NJ.: Prentice-Hall.
- Geels, F. W. 2004. From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. Research Policy, 33(6-7): 897-920.
- Ghuloom, M. A. A. 1997. An empirical investigation of information technology adoption behaviour in banks in Bahrain. The University of Glasgow.
- Gilbert, N., Pyka, A., & Ahrweiler, P. 2001. Innovation networks: A simulation approach. Jasss-the Journal of Artificial Societies and Social Simulation, 4(3): U131-U150.
- Gillham, B. 2000. Case study research methods. London: Continuum.
- Glynn, M. A. 1996. Innovative genius: A framework for relating individual and organizational intelligences to innovation. Academy of Management Review, 21(4): 1081-1111.
- González, M. E., Quesada, G., Picado, F., & Eckelman, C. A. 2004. Customer satisfaction using QFD: An e-banking case. Managing Service Quality, 14(4): 317-330.
- Goodman, P. S. & Griffith, T. L. 1991. A process approach to the implementation of new technology. Journal of Engineering and Technology Management, 8(3-4): 261-285.
- Gopalakrishnan, S. & Bierly, P. 2001. Analyzing innovation adoption using a knowledge-based approach. Journal of Engineering and Technology Management, 18(2): 107-130.
- Graham, I., Spinardi, G., Williams, R., & Webster, J. 1995. The dynamics of EDI standards development. Technology Analysis & Strategic Management, 7(1): 3-20.
- Gremillion, L. L. 1980. Managing the implementation of standardized computer based systems. MIS Quarterly, 4(4): 51.
- Griffith, T. L. 1996. Negotiating successful technology implementation a motivation perspective. Journal of Engineering and Technology Management, 13(1): 29-53.
- Groth, M., Gutek, B. A., & Douma, B. 2001. Effects of service mechanisms and modes on customers' attributions about service delivery. Journal of Quality Management, 6(2): 331-348.
- Gulati, R. 1999. Network location and learning: The influence of network resources and firm capabilities on alliance formation. Strategic Management Journal, 20(5): 397-420.
- Gupta, M. C., Czernik, A., & Sharma, R. D. 2001. Operations strategies of banks: Using new technologies for competitive advantage. Technovation, 21(12): 775-782.
- Gupta, U. G. & Collins, W. 1997. The impact of information systems on the efficiency of banks: An empirical investigation. Industrial Management & Data Systems, 97(1-2): 10-&.
- Gurau, C. 2002. Online banking in transition economies: The implementation and development of online banking systems in Romania. International Journal of Bank Marketing, 20(6): 285-296.
- Hagel, J. & Brown, J. S. 2005. The only sustainable edge: Why business strategy depends on productive friction and dynamic specialization. Boston, Mass: Harvard Business School Press.
- Hammady, S. H. 1999. Organisational culture and service quality: An exploratory case study based investigation of scottish universities' residential function. The University of St. Andrews.
- Hancock, D., Humphrey, D. B., & Wilcox, J. A. 1999. Cost reductions in electronic payments: The roles of consolidation, economies of scale, and technical change. Journal of Banking & Finance, 23(2-4): 391-421.
- Hart, S. 1987. An empirical investigation of the product elimination decision-making process in British manufacturing industry. The University of Strathclyde.

- Hartley, J. F. 1994. Case studies in organisational research. In Cassell, C. & Symon, G. (Eds.), Qualitative methods in organisational research: A practical guide: 208-229. London: Sage Publications.
- Hemmasi, M., Strong, K. C., & Taylor, S. 1994. Measuring service quality for planning and analysis in service firms. Journal of Applied Business Research, 10(4): 24.
- Hensmans, M., van den Bosch, F. A. J., & Volberda, H. W. 2001. Clicks vs. bricks in the emerging online financial services industry. Long Range Planning, 34(2): 231-247.
- Hetzner, W. A., Eveland, J. D., & Tornatzky, L. G. 1986. Fostering innovation: Economic, technical, and organizational issues. In Davis, D. D. (Ed.), Managing technological innovation: 239-255. San Francisco: Jossey-Bass.
- Howcroft, B., Hamilton, R., & Hewer, P. 2002. Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. International Journal of Bank Marketing, 20(3): 111-121.
- Howells, J. 1993. Network decisions: The technical design of EFTPOS. In Howells, J. & Hine, J. (Eds.), Innovative banking: Competition and the management of a new network technology: 140-170. London: Routledge.
- Howells, J. & Hine, J. 1993a. Innovative banking: Competition and the management of a new network technology. London: Routledge.
- Howells, J. & Hine, J. 1993b. Competition, cooperation and the design of an EFTPOS. In Howells, J. & Hine, J. (Eds.), Innovative banking: Competition and the management of a new network technology: 27-61. London: Routledge.
- Howells, J. & Hine, J. 1993c. Conclusions. In Howells, J. & Hine, J. (Eds.), Innovative banking: Competition and the management of a new network technology: 213-224. London: Routledge.
- Howells, J., Alexander, N., & Hine, J. 1993. The design of EFTPOS and the bank-retailer industry relationship. In Howells, J. & Hine, J. (Eds.), Innovative banking: Competition and the management of a new network technology: 213-224. London: Routledge.
- Howells, J. 1997. Management and the hybridization of expertise: EFTPOS in retrospect. Journal of Information Technology, 12(1): 83-95.
- Howells, J. 2005. The management of innovation and technology: The shaping of technology and institutions of the market economy. London: Sage.
- Humphrey, D. B. 1995. Payment systems: Principles, practice, and improvements. Washington, D.C: World Bank.
- Humphrey, D. B., Willeson, M., Bergendahl, G., & Lindblom, T. 2006. Benefits from a changing payment technology in European banking. Journal of Banking & Finance, In Press, Corrected Proof.
- Hussey, J. & Hussey, R. 1997. Business research: A practical guide for undergraduate and postgraduate students. London: Macmillan Press Ltd.
- Hwang, H. G., Ku, C. Y., Yen, D. C., & Cheng, C. C. 2004. Critical factors influencing the adoption of data warehouse technology: a study of the banking industry in Taiwan. Decision Support Systems, 37(1): 1-21.
- Ibbotson, P. & Moran, L. 2003. E-banking and the SME/bank relationship in Northern Ireland. International Journal of Bank Marketing, 21(2): 94-103.
- Infosys Infosys wins National Commercial Bank mandate.
http://www.infosys.com/finacle/july_03_03_news.htm 1-5-2006.
- IOB. Saudi Arabian banking survey. 1995. Riyadh, Saudi Arabia, The Institute of Banking.
Ref Type: Report
- Ireland, R. D., Hitt, M. A., & Vaidyanath, D. 2002. Alliance management as a source of competitive advantage. Journal of Management, 28(3): 413-446.
- Ives, B. & Learmonth, G. P. 1984. The information system as a competitive weapon. Communications of the Acm, 27(12): 1193-1201.
- Jayawardhena, C. & Foley, P. 2000. Changes in the banking sector: The case of Internet banking in the UK. Internet Research-Electronic Networking Applications and Policy, 10(1): 19-30.
- Johnson, B. A. & Ott, J. H. 1995. Banking on multimedia. McKinsey Quarterly, (2): 94.
- Johnston, K. D. & Yetton, P. W. 1996. Integrating information technology divisions in a bank merger: Fit, compatibility and models of change. Journal of Strategic Information Systems, 5(3): 189-211.
- Jones, C., Hesterly, W. S., & Borgatti, S. P. 1997. A general theory of network governance: Exchange conditions and social mechanisms. Academy of Management Review, 22(4): 911-945.
- Joseph, M., McClure, C., & Joseph, B. 1999. Service quality in the banking sector: The impact of technology on service delivery. International Journal of Bank Marketing, 17(4/5): 182-191.

- Karjaluoto, H., Mattila, M., & Pento, T. 2002. Factors underlying attitude formation towards online banking in Finland. *International Journal of Bank Marketing*, 20(6): 261-272.
- Khiaonarong, T. 2000. Electronic payment systems development in Thailand. *International Journal of Information Management*, 20(1): 59-72.
- Kim, J. & Moon, J. Y. 1998. Designing towards emotional usability in customer interfaces--trustworthiness of cyber-banking system interfaces. *Interacting With Computers*, 10(1): 1-29.
- Kinder, T., Klaes, M., & Molina, A. H. 1999. Sociotechnical alignment in the rise and evolution of a telemedicine constituency in Scotland. *Science and Public Policy*, 26(6): 415-435.
- Kinder, T. & Molina, A. H. 1999. From purposiveness to sustainability in the formation of multimedia clusters: Governance and constituency building in Scotland. In Braczyk, H. J., Fuchs, G., & Wolf, H. G. (Eds.), *Multimedia and Regional Economic Restructuring*: 269-297. London: Routledge.
- Kinder, T. 2000. A sociotechnical approach to the innovation of a network technology in the public sector: The introduction of smart homes in West Lothian. *European Journal of Innovation Management*, 3(2): 72-90.
- Kinder, T. 2002a. Emerging e-commerce business models: An analysis of case studies from West Lothian, Scotland. *European Journal of Innovation Management*, 5(3): 130-151.
- Kinder, T. 2002b. Are schools learning organisations? *Technovation*, 22(6): 385-404.
- Kinder, T. 2003. Go with the flow: A conceptual framework for supply relations in the era of the extended enterprise. *Research Policy*, 32(3): 503-523.
- Kinder, T. & Lancaster, N. 2001. Building absorptive capacity in a learning region: A socio-technical model. *Science and Public Policy*, 28(1): 23-40.
- King, N. 2003. The qualitative research interview. In Cassell, C. & Symon, G. (Eds.), *Qualitative methods in organisational research: A practical guide*: 14-36. London: Sage Publications.
- King, S. F. & Burgess, T. F. 2006. Beyond critical success factors: A dynamic model of enterprise system innovation. *International Journal of Information Management*, 26(1): 59-69.
- Klaes, M. 1997. Sociotechnical constituencies, game theory, and the diffusion of compact discs: An inter-disciplinary investigation into the market for recorded music. *Research Policy*, 25(8): 1221-1234.
- Klein, K. J. & Sorra, J. S. 1996. The challenge of innovation implementation. *Academy of Management Review*, 21(4): 1055-1080.
- Knight, E. L., Hall, S. D., Whitmire, R. E., & Hall, D. J. 1999. Current status and plans for Internet banking as reported by CEOs. *Journal of Financial Services Marketing*, 4(1): 49-63.
- Knudsen, T. & Madsen, T. K. 2002. Export strategy: A dynamic capabilities perspective. *Scandinavian Journal of Management*, 18(4): 475-502.
- Kollmann, T. 1998. Marketing for electronic market places: The relevance of two critical points of success. *Electronic Markets*, 8(3): 36-39.
- Kwon, T. H. & Zmud, R. W. 1987. Unifying the fragmented models of information systems implementation. In Boland, R. J. & Hirschheim, R. A. (Eds.), *Critical issues in information systems research*: New York: John Wiley and Sons Ltd.
- Lado, A. A., Boyd, N. G., & Wright, P. 1992. A competency-based model of sustainable competitive advantage: Toward a conceptual integration. *Journal of Management*, 18(1): 77-91.
- Lai, V. S. & Mahapatra, R. K. 1997. Exploring the research in information technology implementation. *Information & Management*, 32(4): 187-201.
- Lang, B. & Colgate, M. 2003. Relationship quality, on-line banking and the information technology gap. *International Journal of Bank Marketing*, 21(1): 29-37.
- Latour, B. 1988. The prince for machines as well as for machinations. In Elliott, B. (Ed.), *Technology and social process*: 20-43. Edinburgh: Edinburgh University Press.
- Latour, B. 1983. Give me a laboratory and I will raise the world. In Knorr-Cetina, M. & Mulkay, M. (Eds.), *Science observed*: 141-170. London: Sage Publications.
- Latour, B. 1986. *Science in action*. Milton Keynes: Open University Press.
- Lavie, D. 2006. The competitive advantage of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, 31(3): 638-658.
- Law, J. 1992. Notes on the theory of the actor network: Ordering, strategy, and heterogeneity. *Systems Practice*, 5(4): 379-393.
- Lee, H. L. & Whang, S. 2001. Winning the last mile of e-commerce. *Mit Sloan Management Review*, 42(4): 54-62.
- Leonard-barton, D. & Kraus, W. A. 1985. Implementing new technology. *Harvard Business Review*, 63(6): 102-110.

- Leonard-barton, D. 1988. Implementation as mutual adaptation of technology and organization. Research Policy, 17(5): 251-267.
- Lewis, J. & Ritchie, J. 2003. Generalising from qualitative research. In Ritchie, J. & Lewis, J. (Eds.), The applications of qualitative methods to social research: 263-286. London: Sage Publications.
- Li, Q. B., Khosla, R., & Lai, C. 2004. Dynamic customer profiling architecture using high performance computing. Knowledge-Based Intelligent Information and Engineering Systems, Pt 3, Proceedings, 3215: 657-664.
- Liao, S. Y., Shao, Y. P., Wang, H. Q., & Chen, A. 1999. The adoption of virtual banking: An empirical study. International Journal of Information Management, 19(1): 63-74.
- Liao, Z. Q. & Cheung, M. T. 2002. Internet-based e-banking and consumer attitudes: An empirical study. Information & Management, 39(4): 283-295.
- Linton, J. D. 2002. Implementation research: State of the art and future directions. Technovation, 22(2): 65-79.
- Loasby, B. 1999. Knowledge, institutions and evolution in economics. New York: Routledge.
- Luarn, P. & Lin, H. H. 2005. Toward an understanding of the behavioral intention to use mobile banking. Computers in Human Behavior, 21(6): 873-891.
- Lucey, T. 1987. Management Information Systems. London: DP Publications.
- Lundvall, B. A. 1992. Introduction. In Lundvall, B. A. (Ed.), National systems of innovation: 1-19. London: Pinter.
- Lymeropoulos, C. and Chaniotakis, L. E. Branch employees' perceptions towards implications of e-banking in Greece. International Journal of Retail & Distribution Management 32[6], 302-311. 2004. Ref Type: Abstract
- Majchrzak, A., Rice, R. E., Malhotra, A., King, N., & Ba, S. 2000. Technology adaptation: The case of a computer-supported inter-organizational virtual team. MIS Quarterly, 24(4): 569-600.
- Mantel, B. 2000. Why don't consumers use electronic banking products? Towards a theory of obstacles, incentives, and opportunities. Chicago, IL: Federal Reserve Bank of Chicago.
- Marr, N. P. G. 1993. Customer adoption of self-service technologies in retail banking: Is expert opinion supported by consumer research? International Journal of Bank Marketing, 11(1): 3-10.
- Martinez-Hernandez, V. 2003. Understanding value creation: The value matrix and the value cube. Thesis, The University of Strathclyde.
- McDermott, C. M. & Stock, G. N. 1999. Organizational culture and advanced manufacturing technology implementation. Journal of Operations Management, 17(5): 521-533.
- McFarlan, F. W. & McKenney, J. L. 1983. Corporate information systems management. Homewood, Illinois: Richard D. Irwin.
- McLaughlin, M., Howe, R., and Cash, Jr. J. I. Changing competitive ground rules: The impact of computers and communications in the 1980s. Graduate School of Business Administration, Harvard University Boston MA. 1983. Ref Type: Unpublished Work
- Metwally, M. M. 1997. Economic consequences of applying Islamic principles in Muslim societies. International Journal of Social Economics, 24(7/8): 941-957.
- Meyers, P. W., Sivakumar, K., & Nakata, C. 1999. Implementation of industrial process innovations: Factors, effects, and marketing implications. Journal of Product Innovation Management, 16(3): 295-311.
- Miles, M. B. & Huberman, A. M. 1994. Qualitative data analysis: An expanded sourcebook. Thousand Oaks: Sage Publications.
- Mintzberg, H. 1979. The structuring of organizations: A synthesis of the research. Englewood Cliffs, N.J: Prentice-Hall.
- Mitchell, J. W. & Sparks, L. 1986. Marketing information systems in the major UK banks. International Journal of Bank Marketing, 6(5): 14-28.
- Molina, A. H. 1990. Transputers and transputer-based parallel computers: Sociotechnical constituencies and the buildup of British European capabilities in information technologies. Research Policy, 19(4): 309-333.
- Molina, A. H. 1993. In search of insights into the generation of technoeconomic trends: Micro-constituencies and macro-constituencies in the microprocessor industry. Research Policy, 22(5-6): 479-506.
- Molina, A. H. 1995. Sociotechnical constituencies as processes of alignment: The rise of a large-scale European information technology initiative. Technology in Society, 17(4): 385-412.

- Molina, A. H. 1997. Insights into the nature of technology diffusion and implementation: The perspective of sociotechnical alignment. Technovation, 17(11-12): 601-626.
- Molina, A. H. Electronic commerce and public administrations: Issues, opportunities and realities. 1998. Manchester. 1-1-1998.
Ref Type: Conference Proceeding
- Molina, A. H. 1999. Understanding the role of the technical in the build-up of sociotechnical constituencies. Technovation, 19(1): 1-29.
- Molina, A. H. 1999. Transforming visionary products into realities: constituency-building and observacting in NewsPad. Futures, 31(3-4): 291-332.
- Molina, A. H. and Michilli, M. Constituency-building in the development of the city of Rome's telematics strategy. 1999. Edinburgh, University of Edinburgh. TechMaPP Working Paper.
Ref Type: Report
- Molina, A. H. & Gregson, G. 2002. Real-time evaluation methodology as a learning instrument in high technology SME support networks. International Journal of Entrepreneurship and Innovation Management, 2(1): 69-99.
- Molina, A. H. & Kinder, T. 2002. National systems of innovations, industrial clusters and constituency-building in Scotland's electronics industry. International Journal of Entrepreneurship and Innovation Management, 1(2): 241-273.
- Molina, A. H. ICT-based Innovation in a Primary School in Belgium. 1-8-2003.
Ref Type: Unpublished Work
- Molina, A. H. Dynamic strategy mapping: A support tool for strategy assessment and making in processes of Sociotechnical constituencies. 15-11-2005.
Ref Type: Unpublished Work
- Mols, N. P. 1998. The behavioral consequences of PC banking. International Journal of Bank Marketing, 16(5): 195-201.
- Mols, N. P. 1999. The Internet and the banks' strategic distribution channel decisions. International Journal of Bank Marketing, 17(6/7): 295-300.
- Mols, N. P. 2000. The Internet and services marketing: The case of Danish retail banking. Internet Research-Electronic Networking Applications and Policy, 10(1): 7-18.
- Mols, N. P. 2001. Organizing for the effective introduction of new distribution channels in retail banking. European Journal of Marketing, 35(5/6): 661-686.
- Morgan, R. M. & Hunt, S. D. 1994. The commitment-trust theory of relationship marketing. Journal of Marketing, 58(3): 20-38.
- Morisi, T. L. 1996. Commercial banking transformed by computer technology. Monthly Labor Review, 119(8): 30-36.
- Morrison, P. D. & Roberts, J. H. 1998. Matching electronic distribution channels to product characteristics: The role of congruence in consideration set formation. Journal of Business Research, 41(3): 223-229.
- Morse, J. M. 1994. Emerging from the data: The cognitive process of analysis in qualitative inquiry. In Morse, J. M. (Ed.), Critical issues in qualitative research methods: 23-43. London: Sage Publications.
- Mukherjee, A. & Nath, P. 2003. A model of trust in online relationship banking. International Journal of Bank Marketing, 21(1): 5-15.
- Murray, G. F. & Erickson, P. G. 1987. Cross-sectional versus longitudinal research: An empirical comparison of projected and subsequent criminality. Social Science Research, 16(2): 107-118.
- Narvekar, R. S. & Karuna, J. 2006. A new framework to understand the technological innovation process. Journal of Intellectual Capital, 7(2): 174-186.
- Nellis, J. G., McCaffery, K. M., & Hutchinson, R. W. 2000. Strategic challenges for the European banking industry in the new millennium. International Journal of Bank Marketing, 18(2/3): 53-63.
- Nelson, M. R. 1999. Bank marketing and information technology: A historical analysis of the post-1970 period. International Journal of Bank Marketing, 17(6/7): 265-273.
- Nelson, R. 1993. A retrospective. In Nelson, R. (Ed.), National innovation systems: A comparative analysis: 505-523. New York: Oxford University Press.
- Nicoll, D. Contextual usability: A methodological outline of contextual usability and quality function deployment in the development of advanced media products. TechMaPP Working Paper . 1995. University of Edinburgh.
Ref Type: Serial (Book, Monograph)
- Nolowidigdo, M. H. 1984. Information systems: Weapons to gain the competitive edge. Financ. Executive, 52(2): 20-25.

- Nord, W. R. & Tucker, S. 1987. Implementing routine and radical innovations. Lexington, MA: Lexington Books.
- Palmer, J. J. 2000. Internet access in Bahrain: Business patterns and problems. Technovation, 20(8): 451-458.
- Parker, J. E. S. 1974. The economics of innovation. London: Longman.
- Passiante, G. & Elia, V. 2003. Knowledge leadership to drive digital innovation. In Passiante, G., Elia, V., & Massari, T. (Eds.), Digital innovation: 143-180. London: Imperial College Press.
- Patton, M. Q. 2002. Qualitative research and evaluation methods. Thousand Oaks, Calif: Sage Publications.
- Pelz, D. C. 1985. Innovation complexity and the sequence of innovating stages. Knowledge-Creation Diffusion Utilization, 6(3): 261-291.
- Pennathur, A. K. 2001. "Clicks and bricks": e-Risk management for banks in the age of the Internet. Journal of Banking & Finance, 25(11): 2103-2123.
- Penrose, E. T. 1959. The theory of the growth of the firm. London: Basil Blackwell.
- Perez, C. 1985. Microelectronics, long-waves, and world structural change. World Development, 13(3): 441-463.
- Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view. Strategic Management Journal, 14(3): 179-191.
- Phillips, E. M. & Pugh, D. S. 2002. How to get a PhD: A handbook for students and their supervisors. Buckingham: Open University Press.
- Pidgeon, N. & Henwood, K. 1996. Grounded theory: Practical implementation. In Richardson, J. (Ed.), Handbook of qualitative research methods for psychology and the social sciences: 86-101. Leicester: The British Psychological Society.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahlila, S. 2004. Consumer acceptance of online banking: An extension of the technology acceptance model. Internet Research-Electronic Networking Applications and Policy, 14(3): 224-235.
- Pinch, T. & Bijker, W. E. 1984. The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. Social Studies of Science, 14(3): 399-441.
- Platt, J. 1992. Case-study in American methodological thought. Current Sociology-Sociologie Contemporaine, 40(1): 17-48.
- Porter, M. E. 1980. Competitive strategy: Techniques for analyzing industries and competitors.
- Porter, M. E. 1985. Competitive advantage: Creating and sustaining superior performance. New York: Free Press.
- Porter, M. E. 1996. What is strategy? Harvard Business Review, 74(6): 61-78.
- Porter, M. E. 2001. Strategy and the Internet. Harvard Business Review, 79(3): 62-+.
- Prahalad, C. K. & Hamel, G. 1990. The core competence of the corporation. Harvard Business Review, 68(3): 79-91.
- Rai, A., Lang, S. S., & Welker, R. B. 2002. Assessing the validity of IS success models: An empirical test and theoretical analysis. Information Systems Research, 13(1): 50-69.
- Rangan, S. & Adner, R. 2001. Profits and the Internet: Seven misconceptions. Mit Sloan Management Review, 42(4): 44-53.
- Rao, B. 1999. The Internet and the revolution in distribution: a cross-industry examination. Technology in Society, 21(3): 287-306.
- Rayport, J. F. & Sviokla, J. J. 1995. Exploiting the virtual value chain. Harvard Business Review, 73(6): 75-&.
- Rexha, N., Kingshott, R. P. J., & Aw, A. S. S. 2003. The impact of relational plan on adoption of electronic banking. Journal of Services Marketing, 17(1): 53.
- Rhodes, E. & Wield, D. 1985. Implementing new technologies: Choices, decision and changes in manufacturing. Oxford: Blackwell.
- Ritchie, J. 2003. The applications of qualitative methods to social research. In Ritchie, J. & Lewis, J. (Eds.), The applications of qualitative methods to social research: 24-46. London: Sage Publications.
- Robson, C. 1993. Real world research: A resource for social scientists and practitioner-researchers. Oxford, UK: Blackwell.
- Rogers, E. M. 1987. The diffusion of innovations. New York, NY: Free Press.
- Russell, S. & Williams, R. 2002. Social shaping of technology: Frameworks, findings and implications for policy with glossary of social shaping concepts. In Sorensen, K. H. & Williams, R. (Eds.), Shaping technology, guiding policy : Concepts spaces and tools: 37-131. Bodmin, Cornwall: MPG Books Ltd.

- Saib. Annual report. 1991. Riyadh, Saudi Investment Bank.
Ref Type: Report
- Saib. Annual report. 1996. Riyadh, Saudi Investment Bank.
Ref Type: Report
- Saib. Annual report. 2005. Riyadh, Saudi Investment Bank.
Ref Type: Report
- Saini, A. & Johnson, J. L. 2005. Organizational capabilities in e-commerce: An empirical investigation of e-brokerage service providers. Journal of the Academy of Marketing Science, 33(3): 360-375.
- Sama 1999. Development and restructuring of the Saudi banking system. Bank restructuring in Practice: 183-196. Basel: Bank for International Settlements.
- Sama. A case study on globalisation and the role of institution building in the financial sector in Saudi Arabia. 10-9-2003. Riyadh, Saudi Arabia, Saudi Arabian Monetary Agency. 2004.
Ref Type: Report
- Samba. Annual report. 1-1-2004. Riyadh, Saudi Arabia, Samba Financial Group.
Ref Type: Report
- Samiotis, K. & Poulymenakou, A. 2002. Knowledge management in e-banking: A competence-based perspective. Journal of Computer Information Systems, 42(5): 102-109.
- Savory, C. 2006. Translating knowledge to build technological competence. Management Decision, 44(8): 1052-1075.
- Scapens, R. W. 1990. Researching management accounting practice: The role of case study methods. The British Accounting Review, 22(3): 259-281.
- Scheirer, M. A. 1983. Approaches to the study of implementation. Ieee Transactions on Engineering Management, 30(2): 76-82.
- Schneider, W. & Sodian, B. 1997. Memory strategy development: Lessons from longitudinal research. Developmental Review, 17(4): 442-461.
- Schumpeter, J. A. 1934. The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. Cambridge, MA: Harvard University Press.
- Schumpeter, J. A. 1942. Capitalism, socialism, and democracy. New York: Harper.
- Scott Morton, M. S. 1991. The corporation of the 1990s: Information technology and organizational transformation. New York: Oxford University Press.
- Seddon, P. B. 1997. A respecification and extension of the DeLone and McLean model of IS success. Information Systems Research, 8(3): 240-253.
- Shavelson, R. J. & Towne, L. 2002. Scientific research in education. Washington, DC: National Academy Press.
- Shu, W. & Strassmann, P. A. 2005. Does information technology provide banks with profit? Information & Management, 42(5): 781-787.
- Simpson, J. 2002. The impact of the Internet in banking: Observations and evidence from developed and emerging markets. Telematics and Informatics, 19(4): 315-330.
- Sisodia, R. S. 1992. Marketing information and decision support systems for services. Journal of Services Marketing, 6(1): 51.
- Slaughter, S. 1993. Innovation and learning during implementation: a comparison of user and manufacturer innovations. Research Policy, 22(1): 81-95.
- Smith, C. P. 1985. Developments in retail banking. Data Processing, 27(5): 37-41.
- Smith, K. G., Grimm, C. M., & Gannon, M. J. 1992. Dynamics of competitive strategy. London: Sage Publications.
- Sohail, M. S. & Shanmugham, B. 2003. E-banking and customer preferences in Malaysia: An empirical investigation. Information Sciences, 150(3-4): 207-217.
- Southard, P. B. & Siau, K. 2004. A survey of online e-banking retail initiatives. Communications of the Acm, 47(10): 99-102.
- Spencer, L. R. J. & O'Connor, W. 2003. Analysis: Practices, principles, and processes. In Ritchie, J. & Lewis, J. (Eds.), Qualitative research practice: A guide for social science students and researchers: 199-218. London: Sage Publications.
- Stabell, C. B. & Fjeldstad, O. D. 1998. Configuring value for competitive advantage: On chains, shops, and networks. Strategic Management Journal, 19(5): 413-437.
- Stake, R. 1994. Case studies. In Denzin, N. K. & Lincoln, Y. (Eds.), Handbook of qualitative research: 236-246. London: Sage.

- Stamoulis, D., Kanellis, P., & Martakos, D. 2002. An approach and model for assessing the business value of e-banking distribution channels: evaluation as communication. International Journal of Information Management, 22(4): 247-261.
- Suh, B. & Han, I. 2002. Effect of trust on customer acceptance of Internet banking. Electronic Commerce Research and Applications, 1(3-4): 247-263.
- Sundarraj, R. P. & Wu, J. 2005. Using information-systems constructs to study online- and telephone-banking technologies. Electronic Commerce Research and Applications, 4(4): 427-443.
- Swanson, E. B. 1988. Information system implementation: Bridging the gap between design and utilization. Homewood, IL: Irwin.
- Swierczek, F. W. & Shrestha, P. K. 2003. Information technology and productivity: A comparison of Japanese and Asia-Pacific banks. The Journal of High Technology Management Research, 14(2): 269-288.
- Tadawul. Annual report. 2003. Riyadh, Saudi Arabia, Tadawul.
Ref Type: Report
- Talvinen, J. M. 1995. Information systems in marketing: identifying new opportunities for applications. European Journal of Marketing, 29(1): 8-26.
- Tan, M. & Teo, T. S. H. 2000. Factors influencing the adoption of Internet banking. Journal of the Association for Information Systems, 1(5): 1-42.
- Taylor, S. & Todd, P. 1995. Assessing IT usage: The role of prior experience. MIS Quarterly, 19(4): 561-570.
- Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. Strategic Management Journal, 18(7): 509-533.
- Thompson, V. A. 1969. Bureaucracy and innovation. Alabama: University of Alabama Press.
- Tjan, A. K. 2001. Finally, a way to put your Internet portfolio in order. Harvard Business Review, 79(2): 76-85.
- Trist, E. & Bamford, K. 1951. Some social and psychological consequences of the longwall method of coal getting. Human Relations, 4: 3-38.
- Tyler, K. & Stanley, E. 2001. Corporate banking: The strategic impact of boundary spanner effectiveness. International Journal of Bank Marketing, 19(6): 246-260.
- Tyre, M. J. & Orlikowski, W. J. 1994. Windows of opportunity: Temporal patterns of technological adaptation in organizations. Organization Science, 5(1): 98-118.
- Umble, E. J., Haft, R. R., & Umble, M. M. 2003. Enterprise resource planning: Implementation procedures and critical success factors. European Journal of Operational Research, 146(2): 241-257.
- Van de Ven, A. H. 1986. Central problems in the management of innovation. Management Science, 32(5): 590-607.
- Voss, C. A. 1985. The need for a field of study of implementation of innovations. Journal of Product Innovation Management, 2(4): 266-271.
- Voss, C. A. 1988. Implementation: A key issue in manufacturing technology: the need for A field of study. Research Policy, 17(2): 55-63.
- Waite, K. & Harrison, T. 2004. Online banking information: What we want and what we get. Qualitative Market Research: An International Journal, 7(1): 67-79.
- Weitzman, E. A. 2000. Software and qualitative research. Handbook of qualitative research: 803-820. London: Sage Publications.
- Werner, R. M. 2003. The development of a dynamic model for value creation. Thesis, The University of East London.
- Wernerfelt, B. 1997. A resource-based view of the firm. In Nicolai, J. F. (Ed.), Resources, firms and strategies: A reader in the resource-based perspective: 117-130. Oxford: Oxford University Press.
- Willcocks, L. P. & Plant, R. 2001. Pathways to e-business leadership: Getting from bricks to clicks. Mit Sloan Management Review, 42(3): 50-59.
- Williams, R. & Edge, D. 1996. The social shaping of technology. Research Policy, 25(6): 865-899.
- Williams, R. 1997. Universal solutions or local contingencies? Tensions and contradictions in the mutual shaping of technology and work organisation. In McLaughlin, I. & Harris, M. (Eds.), Innovation Organizational Change and Technology: 170-185. London: International Thompson Business Press.
- Williamson, O. E. 1975. Markets and hierarchies, analysis and antitrust implications: A study in the economics of internal organization. New York: Free Press.
- Williamson, O. E. 1979. Transaction-cost economics: Governance of contractual relations. Journal of Law & Economics, 22(2): 233-261.

- Williamson, O. E. 1983. Organizational innovation: The transaction cost approach. In Ronen, J. (Ed.), *Entrepreneurship*: 101-133. Lexington, MA: Lexington Books.
- Wisner, J. D. & Corney, W. J. 2001. Comparing practices for capturing bank customer feedback: Internet versus traditional banking. *Benchmarking*, 8(3): 240-250.
- Yakhlef, A. 2001. Does the Internet compete with or complement bricks-and-mortar bank branches? *International Journal of Retail & Distribution Management*, 29(6/7): 274.
- Yang, Z. L., Jun, M. J., & Peterson, R. T. 2004. Measuring customer perceived online service quality: Scale development and managerial implications. *International Journal of Operations & Production Management*, 24(11-12): 1149-1174.
- Yetton, P., Sharma, R., & Southon, G. 1999. Successful IS innovation: The contingent contributions of innovation characteristics and implementation process. *Journal of Information Technology*, 14(1): 53-68.
- Yin, R. K. 1981. The case-study crisis: Some answers. *Administrative Science Quarterly*, 26(1): 58-65.
- Yin, R. K. 2003. *Case study research: Design and methods*. Thousand Oaks, Calif: Sage Publications.
- Yoffie, D. B. & Cusumano, M. A. 1999. Building a company on Internet time: Lessons from Netscape. *California Management Review*, 41(3): 8-28.
- Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. 2003. A proposed model of e-trust for electronic banking. *Technovation*, 23(11): 847-860.
- Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. 2005. Strategies for building and communicating trust in electronic banking: A field experiment. *Psychology & Marketing*, 22(2): 181-201.
- Zikmund, W. G. 2003. *Business research methods*. Mason, OH: Thomson/South-Western.
- Zmud, R. W. & Cox, J. F. 1979. The implementation process: A change approach. *MIS Quarterly*, 3(2): 35-43.

Appendices

Appendix I: Survey guide

Appendix II: Semi-structure interview guide

Appendix III: List of publications

- ☐ Permissions from publishers
 - Tampere University of Technology and Tampere University
 - International Business Information Management Association (IBIMA)
 - International Association for Development of Information Society (IADIS)
- ☐ Permission from the co-author, Professor Alfonso Molina
- ☐ Conference papers
 1. Al-Jadeed, M. & Molina, A. 2004. The emergence and evolution of e-banking in Saudi Arabia: The case of Samba Financial Group. In Proceedings of e-Business Research Forum 2004. Tampere: Finland. 20-22 September. Vol. 1, 90-106.
 2. Al-Jadeed, M. & Molina, A. 2005a. Toward Saudi Arabian e-banking: The case of AlRajhi Banking & Investment Corporation. in Proceedings of the 4th IBIMA Conference on Information Management in Modern Enterprise. Lisbon: Portugal. 5-7 July. 203-211.
 3. Al-Jadeed, M. & Molina, A. 2005b. e-Banking value creation strategies: The case of the Saudi Investment Bank. In Proceedings of the IADIS International Conference WWW/Internet. Lisbon: Portugal. 19-22 October. Vol. 1, 118-129.
 4. Al-Jadeed, M. & Molina, A. 2005c. Beyond the resource-based view of the firm: The case of dynamic capabilities building at a Saudi bank. In Proceedings of the 5th IBIMA Conference on the Internet and Information Technology in Modern Organisations. Cairo: Egypt. 13-15 December. 320-345.
 5. Al-Jadeed, M. & Molina, A. 2005d. Strategic networks to create e-banking value: The case of a Saudi-European joint venture bank. In Proceedings of the 5th IBIMA Conference on the Internet and Information Technology in Modern Organisations. Cairo: Egypt. 13-15 December. 362-383.
 6. Al-Jadeed, M. & Molina, A. 2006a. Toward a taxonomy of strategic approaches to capabilities building and value creation: the case of the Saudi Arabian Capital Market. In Proceedings of the 15th Conference of the International Association for Management of Technology (IAMOT 2006). Beijing: P.R. China. 22-26 May 2006.
- ☐ Book (Chapter)
 1. Al-Jadeed, M. & Molina, A. 2006b. Strategic networks to create e-banking value: The case of the Saudi Hollandi Bank. In Soliman, K. S. 2006. *Advancing @ the speed of technology: e-Business strategies for modern corporations*. New York. Forthcoming. Fall 2006.
 2. Al-Jadeed, M. & Molina, A. 2006c. e-Capital capabilities building and value creation: The case of the Saudi Arabian Capital Market. In Web Proceedings of the 13th Global Finance Conference. Rio de Janeiro: Brazil. 26-28 April 2006.
 3. Al-Jadeed, M. & Molina, A. 2007. Resource-based or dynamic capabilities: The case of Riyadh Bank, in Soliman, K. S. (ed.) 2007. *e-Business impact on supply chain and business process: Analysis and Best Practice*. IBIMA Press: New York. Forthcoming Spring 2007.
- ☐ Others
 - AlAhli's case study: The paper has been accepted for presentation at Africa Telecommunication and ICT Conference. Nairobi: Kenya. 17-21 May 2006. It also has been accepted for presentation and publication at International Conference on Business and Information. Singapore. 12-14 July 2006.

Appendix IV: List of newspaper Articles

The following selected articles aim to advance and disseminate the knowledge and understanding among the public in Saudi Arabia. Most of these articles related to the matter of this thesis.

1. Industrial cluster and competitive advantage... SABIC and boom. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4361), 2005.
2. Riyadh Economic Forum and ICT clusters. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4439), 2005.
3. FDI... the chance of the Saudi emerging market? Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4694), 2006.
4. Stocks... correction or collapse? Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4687), 2006.
5. Real estates on the path of stocks. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4624), 2006.
6. Path dependence... AlBilad as an example. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4645), 2006.
7. Re-engineering... AlRajhi as an example. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4631), 2006.
8. The next market mechanise. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4638), 2006.
9. Reviewing the King's speech (1/2) Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4652), 2006.
10. Reviewing the King's speech (2/2) Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4659), 2006.
11. The next stocks collapse. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4606), 2006.
12. Wilful stocks. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4599), 2006.
13. Next month's stock prices. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4569), 2006.
14. The capital market from trading to investment... the management capability. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4562), 2006.
15. Leadership in Saudi companies ... STC and AlMulhem. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4555), 2006.
16. The feasibility of AlAhli's privatisation. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4533), 2006.
17. Average investors first. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4688), 2006.
18. The conflict of interests... a lesson from Moscow. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4526), 2006.
19. Souk Al-Manakh. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4519), 2006.
20. Brokers and market... to avoid Santiago's challenge. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4511), 2006.
21. Saudia, e-tickets and value creation in the local civil aviation sector. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper , 2005.
22. A primary and secondary market ... differences in mechanism, trading, and investment. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper , 2005.
23. Finland... Investment Authority. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4418), 2005.
24. Tadawul..privatisation and challenge. Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4411), 2005.
25. Strategies of Saudi banks... via the future's or past's eye!! Riyadh, Saudi Arabia: Saudi Research & Marketing Group. Aleqtisadiah Newspaper (4269) 2005.
26. The national IT plan... lessons from Lisbon strategy. Riyadh, Saudi Arabia: Yamamah Press Est. AlRiyadh Newspaper (13574), 2005.

Appendix V: Toward a taxonomy of strategic approaches to constituency-building